

Curriculum
For
Certificate in Textile Machinery Repair
and Maintenance
(Spinning)
1-Year Certificate Course
Code:VI87S009
(2013)

SCHEME OF STUDIES

20% Theory 80% Practical

Certificate of Textile Machinery Repair and Maintenance (Spinning)

| Sr # | Modules | Theory Hours | Practical Hours | Total Hours | Page # |
|-------------|--------------------|---------------------|------------------------|--------------------|---------------|
| 1 | Module 1: | 40 | 160 | 200 | 7 |
| 2 | Module 2: | 40 | 160 | 200 | 10 |
| 3 | Module 3: | 40 | 160 | 200 | 12 |
| 4 | Module 4: | 40 | 160 | 200 | 14 |
| 5 | Module 5: | 36 | 150 | 186 | 17 |
| 6 | Module 6: | 40 | 160 | 200 | 19 |
| 7 | Module 7: | 36 | 150 | 186 | 21 |
| 8 | Module 8: | 24 | 90 | 114 | 24 |
| 9 | Module 9: | 24 | 90 | 114 | 27 |
| | TOTAL HOURS | 320 | 1280 | 1600 | |

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1. Introduction:

1.1 Name of course:

Certificate of mechanical maintenance and repair for supervisor (spinning)

1.2 Overall objective of course:

The main objective of the course is to create a team leader at supervisory level that has not only the complete awareness of handling and performing the machine maintenance but also has the knowledge of quality parameters and production plan. He has to perform the preventive maintenance rather than the break down maintenance to avoid the production loss by spending the best available without effecting the production cost.

The modules cover all the departments of a spinning mill which include Blow room, Carding, Drawing, Combing, Roving Spinning, Ring Spinning, Cone-winding, Roller cover, air conditioning and Packing including the awareness of auxiliary machines also related to each department.

1.3 Competencies gained after completion of course

At the end of the course the trainee should have the knowledge and skills mentioned under.

Knowledge based tasks

- Must be very well aware of safety rules during the maintenance of the machine
- Understand the catalogues of all machines in spinning mills
- Basic knowledge to the layout plans that is required for new machine installation.
- Understand to produce and upgrade the operating procedure and schedule for maintenance.
- Understand the reasons for doing cleaning and other maintenance activities
- Should have the knowledge of effect of replacement of parts on quality and production.
- Must know how to handle oil and other lubricants, chemicals etc.to avoid any harm.
- He must know the bearings, belts, their application with respect to their sizes and type

Skill based tasks

- Repair/ change the faulty parts if breakdown occurs
- Perform the maintenance of the machine parts according to the given schedules
- Work effectively in a repair and maintenance team
- Place orders for parts required to avoid stoppages of the machines because of breakdowns.

- Perform report writing and communicate with other concerned departments in the spinning mills such as main store, purchase, HR, etc.

1.4 Job opportunities available immediately and in the future

After completing the course, learners will have the opportunities to pursue career opportunities into job roles such as textile fitter and assistant supervisor (maintenance).

1.5 Trainee entry level

Matriculation

This course of Certificate in Repair & Maintenance Supervisor (Spinning) has been developed for those persons, who has the ability to read and write in English and Urdu languages and are familiar with the processes of the spinning mills. If the learners are not aware of the process then they will be made familiar with the processes during the course of training.

1.6 Minimum qualification of trainer

Diploma of Associate Engineer (Textile)

1.7 Medium of Instruction

Urdu preferably

1.8 Sequence of the modules:

All modules must be completed in the given sequence

1.9 Timeframe of assessment: (recommendation)

All assessments must be completed by the end of each learning unit. However the trainer may check the progress of the trainees during the course of learning process

2. Overview about the program –Curriculum for Certificate in Repair & Maintenance Supervisor (Spinning)

| Module Title and Aim | Learning Units | Theory ¹ Days/hours | Workplace ² Days/hours | Timeframe of modules |
|---------------------------------------|---|-----------------------------------|--------------------------------------|---|
| Module 1 Maintain Blow Room | LU 1 Introduction of department machinery parts and safety rules. LU 2 Awareness of usage of belts, bearings and lubricants. LU 3 Prepare operating procedure and schedule for maintenance. LU 4 Execute replacement of parts directly effecting quality and keep its record LU 5 Placing demand of spare parts and check its quality and keep stock in sub store of frequently used items in sub-stores up to certain level LU 6 Follow the production plan and execute changes as per plan LU 7 Study of compressors, compressed air and filter | 40 hours | 160 hours | First module |
| Module 2 Maintain & Repair Carding | LU 1 Introduction of department machinery parts and safety rules. LU 2 Awareness of usage of belts, bearings and lubricants. LU 3 Prepare operating procedure and schedule for maintenance. LU 4 Execute replacement of parts directly effecting quality LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level LU 6 Follow the production plan and execute changes as per plan LU 7 Study of compressor, compressed air and filter LU 8 Study of auxiliary machines | 40 hours | 160 hours | Module 1 to be completed before this module |

¹ Learning hours in training provider premises

² Training workshop, laboratory and on-the-job workplace

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| | such as mounting and grinding. | | | |
| Module 3 Maintain & Repair Drawing Frame | <p>LU 1 Introduction of department machinery parts and safety rules.</p> <p>LU 2 Awareness of usage and handling of belts, bearings and lubricants.</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> <p>LU 4 Execute replacement of parts directly effecting quality.</p> <p>LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 6 Follow the production plan and execute changes as per plan</p> | 40 hours | 160 hours | Modules 1, and 2 to be completed before this module |
| Module 4 Maintain & Repair Lap-former & Comber | <p>LU 1 Introduction of department machinery parts and safety rules.</p> <p>LU 2 Awareness of usage of belts, bearings and lubricants.</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> <p>LU 4 Execute replacement of parts directly effecting quality.</p> <p>LU 7 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 5 Inspect the quality of the parts purchased</p> <p>LU 6 Maintain spare parts' stock of frequently used in sub-stores up to certain level</p> <p>LU 7 Follow the production plan and execute changes as per plan</p> | 40 | 160 | Modules 1,2,and 3 to be completed before this module |
| Module 5 Maintain & Repair Roving Frame | <p>LU 1 Introduction of department machinery parts and safety rules.</p> <p>LU 2 Awareness of usage of belts, bearings and lubricants.</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> | 36 hours | 150 hours | Modules 1, 2, 3, and 4 to be completed before this module |

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| | <p>LU 4 Execute replacement of parts directly effecting quality.</p> <p>LU 8 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 5 Follow the production plan and execute changes as per plan</p> | | | |
| <p>Module 6 Maintain & Repair Ring Frame</p> | <p>LU 1 Introduction of department machinery parts and safety rules.</p> <p>LU 2 Awareness of usage of belts, bearings and lubricants.</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> <p>LU 4 Execute replacement of parts directly effecting quality.</p> <p>LU 9 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 5 Follow the production plan and execute changes as per plan</p> | 40 hours | 160 hours | <p>Modules 1, 2, 3, 4, and 5 to be completed before this module</p> |
| <p>Module 7 Maintain & Repair Auto-Cone</p> | <p>LU 1 Introduction of department machinery parts and safety rules.</p> <p>LU 2 Awareness of usage of belts, bearings and lubricants.</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> <p>LU 4 Execute replacement of parts directly effecting quality.</p> <p>LU 10 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 5 Follow the production plan and execute changes as per plan</p> <p>LU 6 Study of compressor and compressed air</p> | 36 hours | 150 hours | <p>Modules 1, 2, 3, 4, 5, and 6 to be completed before this module</p> |
| <p>Module 8 Check repair, maintenance and quality of Yarn Conditioning and Packing</p> | <p>LU 1 Prepare maintenance and repair schedules of each AC station</p> <p>LU 2 Demand of spare parts and check its quality and keep its stock in sub store up to certain level</p> <p>LU 3 Inspect the quality of</p> | 24 | 90 | <p>Modules 1, 2, 3, 4, 5, 6, and 7 to be completed before this module</p> |

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| | <p>purchased spare parts</p> <p>LU 4 Maintain spare parts' stock in sub-stores</p> <p>LU 5 Inspect the condition of different parts of machines</p> <p>LU 6 Check the machine settings</p> <p>LU 7 Check the electronic devices on machines</p> <p>LU 8 Do corrective maintenance if necessary</p> <p>LU 9 Do scheduled maintenance according to plan</p> <p>LU 10 Change the machine settings according to the plan</p> <p>LU 11 Check and maintain the RH% and temperature of all departments</p> | | | |
| Module 9 Roller covering | <p>LU 1 Introduction of department rubber cots and aprons of the concerned department.</p> <p>LU 2 Be aware of how to handle the acids or any other chemicals</p> <p>LU 3 Prepare operating procedure and schedule for maintenance.</p> <p>LU 4 Execute replacement rubber cots and aprons timely.</p> <p>LU 5 Keep the record of cots and aprons changed</p> <p>LU 6 Demand of spare parts such as cots and aprons.</p> <p>LU 7 Inspect the quality of the parts purchased</p> <p>LU 8 Maintain spare parts' stock of frequently used in sub-stores up to certain level</p> <p>LU 9 Keep record of grinding intervals of concerned department.</p> <p>LU 10 Prepare cleaning and inspection schedule and keep record.</p> <p>LU 11 Daily routine inspection of cots and aprons used on the machines</p> | 24 hours | 90 hours | Modules 1, 2, 3, 4, 5, 6,7 and 8 to be completed before this module |

3. Repair and Maintenance Supervisor (Spinning) Curriculum Contents (Teaching and Learning Guide)

Module 1:Maintain Blow Room

Objective of the Module:To maintain the machinery of the Blow Room for lasting performance

Duration: ..200..... hours Theory: ..40..... hours Practice:.160..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/ hours | Workplace Days/hours | Materials Required | Learning Place |
|---|---|--|--------------------|----------------------|--|------------------------------|
| 1. Introduction of department machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | <p>Knowledge of:</p> <p>How the process of lap formation takes place in blow room</p> <p>Where the safety devices are located and what are their importance</p> <p>Ability to:</p> <p>Run the spin plan as per requirement</p> | 6 | 24 | Observation and catalogue for study of safety switches | Spinning Department of mills |
| 2. Awareness of usage of belts, bearings, gears and lubricants. | The learner will get the basic knowledge about the usage of belts type, oil type and bearing type with respect to their application | <p>Knowledge of:</p> <p>How the different types of belts, bearings, oil number and gears have different application.</p> <p>Ability to:</p> <p>Use the proper type at proper place according to machine catalogue recommendation</p> | 6 | 24 | Catalogue by the manufacturer | Class room and department |

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| 3. Prepare operating procedure and schedule for maintenance. | The learner will get the knowledge after how long the machine need to be over hauled and maintained | Knowledge of: Life of parts that need to be changed after specified interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation | 6 | 24 | Catalogue by the manufacturer and physical observation | Class room and department |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 6 | 24 | Observation depending on quality parameter repots | Spinning Department of mills |
| 5. Demand of spare parts and check its quality and keep its stock in sub store up to certain level | Which parts are more frequently used and knowledge about its availability for vendors | Knowledge of: Parts life and cause of premature failure Ability to: Reduce the number of stops due to premature failure of parts and keep them in stock | 6 | 24 | Personally maintained record | Class room/ Spinning Department of mills |
| 6. Follow the production | how much production is | Knowledge of: Machine capacity | 6 | 20 | As per production plan | Class room/ Spinning |

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|---|---|--|---|----|----------------------------------|--|
| plan and execute changes as per plan | required to produce specific quality and what settings are required | Ability to: Adjust the machine settings according to type of material and customers request | | | order | Department of mills |
| 7. Study of compressor, compressed air and filter | Quantity and quality of air required | Knowledge of: How much pressure is required for machine Ability to: Plan the compressed air requirement | 4 | 20 | Catalogue by machine manufacture | Class room/ Spinning Department of mills |

Module 2: Maintain & Repair Carding

Objective of the Module: To maintain the Carding for lasting performance

Duration: ..200..... hours Theory: ..40..... hours Practice: 160..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|---|--|--|-------------------|----------------------|--|--|
| 1. Introduction of department machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | Knowledge of: How to produce sliver from lap Where the safety devices are located and what are its importance Ability to: Run the spin plan as per requirement | 5 | 20 | Observation and catalogue for study of safety switches | Class room/ Spinning Department of mills |
| 2. Awareness of usage of belts, bearings, | The learner will get the basic knowledge about the | Knowledge of: How the different types of belts, bearings, oil | 5 | 20 | Catalogue by the manufacturer | Class room/ Spinning Department of mills |

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|--|---|---|---|----|--|---|
| gears and lubricants . | usage of belts type, oil type and bearing type with respect to their application | number and gears have different application. Ability to: Use the proper type at proper place according to machine catalogue recommendation | | | | |
| 3. Prepare operating procedure and schedule for maintenance. | The learner will get the knowledge after how long the machine need to be over hauled and maintained | Knowledge of: Life of parts that need to be changed after specified interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation | 5 | 20 | Catalogue by the manufacturer and physical observation | Class room/ Spinning Department of mills |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 5 | 20 | Observation depending on quality parameter repots | Class room/ Spinning Department of mills |
| 5. Demand | Which | Knowledge of: | 5 | 20 | Personally | Class room/ |

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|----|--|--|--|---|----|----------------------------------|---|
| | of spare parts and check its quality and keep its stock in sub store up to certain level | parts are more frequently used and knowledge about its availability for vendors | Parts life and cause of premature failure Ability to: reduce the number of stops due to premature failure of parts and keep them in stock | | | maintained record | Spinning Department of mills |
| 6. | Follow the production plan and execute changes as per plan | How much production is required to produce specific quality and what settings are required | Knowledge of: Machine capacity Ability to: Adjust the machine settings according to type of material and customers request | 5 | 20 | As per production plan order | Class room/ Spinning Department of mills |
| 7. | Study of compressor, compressed air and filter | Quantity and quality of air required | Knowledge of: How much pressure is required for machine Ability to: Plan the compressed air requirement | 5 | 20 | Catalogue by machine manufacture | Class room/ Spinning Department of mills |
| 8. | Study of auxiliary machines such as mounting and grinding. | Use of these machines are necessary for grinding. It is vital to have its knowledge | Knowledge of: The effect of quality before and after grinding Ability to: Decide when grinding of the clothing is need to be done | 5 | 20 | | Class room/ Spinning Department of mills |

Module 3: Maintain & Drawing frames

Objective of the Module: To maintain the Drawing frames

Duration: ..200..... hours Theory: ..40..... hours Practice: 160..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|--|---|--|-------------------|----------------------|--|---------------------------|
| 1. Introduction of department machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | <p>Knowledge of:</p> <p>How the doubling reduces the irregularity</p> <p>Where the safety devices are located and what are its importance</p> <p>Ability to:</p> <p>Run the spin plan as per requirement</p> | 6 | 26 | Observation and catalogue for study of safety switches | Department |
| 2. Awareness of usage of belts, bearings, gears and lubricants . | The learner will get the basic knowledge about the usage of belts type, oil type and bearing type with respect to their application | <p>Knowledge of:</p> <p>How the different types of belts, bearings, oil number and gears have different application.</p> <p>Ability to:</p> <p>Use the proper type at proper place according to machine catalogue recommendation</p> | 6 | 26 | Catalogue by the manufacturer | Class room and department |
| 3. Prepare operating procedure and schedule for | The learner will get the knowledge after how long the machine | <p>Knowledge of:</p> <p>Life of parts that need to be changed after specified</p> | 7 | 28 | Catalogue by the manufacturer and physical observation | Class room and department |

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| mainten nce. | need to be over hauled and maintained | interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendatio n | | | | |
| 4. Execute replacem ent of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 7 | 28 | Observation depending on quality parameter reposts | Class room/ Spinning Department of mills |
| 5. Demand of spare parts and check its quality and keep its stock in sub store up to certain level | Which parts are more frequently used and knowledge about its availability for vendors | Knowledge of: Parts life and cause of premature failure Ability to: Reduce the number of stops due to premature failure of parts and keep them in stock | 7 | 26 | Personally maintained record | Class room/ Spinning Department of mills |
| 6. Follow the productio n plan and | how much production is required to produce specific | Knowledge of: Machine capacity Ability to: | 6 | 26 | As per production plan order | Class room/ Spinning Department of mills |

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| execute changes as per plan | quality and what settings are required | Adjust the machine settings according to type of material and customers request | | | | |
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Module 4: Maintain & Repair Lap former and Comber

Objective of the Module: To maintain the lap former and combing machines for lasting performance

Duration: ..200..... hours Theory: ..40..... hours Practice:..160..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|--|--|--|-------------------|----------------------|--|---------------------------|
| 1. Introduction of department machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | <p>Knowledge of:</p> <p>How the doubling reduces the irregularity</p> <p>Where the safety devices are located and what are its importance</p> <p>Ability to:</p> <p>Run the spin plan as per requirement</p> | 6 | 24 | Observation and catalogue for study of safety switches | Department |
| 2. Awareness of usage of belts, bearings, gears and lubricants . | The learner will get the basic knowledge about the usage of belts type, oil type and | <p>Knowledge of:</p> <p>How the different types of belts, bearings, oil number and gears have different</p> | 6 | 24 | Catalogue by the manufacturer | Class room and department |

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|--|--|---|---|----|--|--|
| | bearing type with respect to their application | application. Ability to: Use the proper type at proper place according to machine catalogue recommendation | | | | |
| 3. Prepare operating procedure and schedule for maintenance. | The learner will get the knowledge after how long the machine need to be overhauled and maintained | Knowledge of: Life of parts that need to be changed after specified interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation | 5 | 20 | Catalogue by the manufacturer and physical observation | Class room and department |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 6 | 24 | Observation depending on quality parameter repots | Class room/ Spinning Department of mills |
| 5. Demand of spare parts and check its | Which parts are more frequently | Knowledge of: Parts life and cause of premature | 6 | 24 | Personally maintained record | Class room/ Spinning Department of mills |

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|---|--|---|---|----|----------------------------------|---|
| quality and keep its stock in sub store up to certain level | used and knowledge about its availability for vendors | failure Ability to: reduce the number of stops due to premature failure of parts and keep them in stock | | | | |
| 6. Follow the production plan and execute changes as per plan | how much production is required to produce specific quality and what settings are required | Knowledge of: Machine capacity Ability to: Adjust the machine settings according to type of material and customers request | 5 | 20 | As per production plan order | Class room/ Spinning Department of mills |
| 7. Study of compressor, compressed air. | Quantity and quality of air required | Knowledge of: How much pressure is required for machine Ability to: Plan the compressed air requirement | 6 | 24 | Catalogue by machine manufacture | Class room/ Spinning Department of mills |

Module 5: Maintain & Repair Roving Frame

Objective of the Module: To maintain the roving frames for lasting performance

Duration: ..186..... hours Theory: ..36..... hours Practice:.150..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|---|---|--|-------------------|----------------------|--|---------------------------|
| 1. Introduction of department machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | <p>Knowledge of:</p> <p>How the produce uniform regular roving</p> <p>Where the safety devices are located and what are its importance</p> <p>Ability to:</p> <p>Run the spin plan as per requirement</p> | 6 | 25 | Observation and catalogue for study of safety switches | Department |
| 2. Awareness of usage of belts, bearings, gears and lubricants. | The learner will get the basic knowledge about the usage of belts type, oil type and bearing type with respect to their application | <p>Knowledge of:</p> <p>How the different types of belts, bearings, oil number and gears have different application.</p> <p>Ability to:</p> <p>Use the proper type at proper place according to machine catalogue recommendation</p> | 6 | 25 | Catalogue by the manufacturer | Class room and department |
| 3. Prepare operating | The learner will get the | <p>Knowledge of:</p> <p>Life of parts that</p> | 6 | 25 | Catalogue by the | Class room and |

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|--|---|---|---|----|---|---|
| procedure and schedule for maintenance. | knowledge after how long the machine need to be over hauled and maintained | need to be changed after specified interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation | | | manufacturer and physical observation | department |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 6 | 25 | Observation depending on quality parameter repots | Class room/ Spinning Department of mills |
| 5. Demand of spare parts and check its quality and keep its stock in sub store up to certain level | Which parts are more frequently used and knowledge about its availability for vendors | Knowledge of: Parts life and cause of premature failure Ability to: reduce the number of stops due to premature failure of parts and keep them in stock | 6 | 25 | Personally maintained record | Class room/ Spinning Department of mills |
| 6. Follow the production | how much production | Knowledge of: Machine | 6 | 25 | As per production | Class room/ Spinning |

| | | | | | | |
|--------------------------------------|--|---|--|--|------------|---------------------|
| plan and execute changes as per plan | is required to produce specific quality and what settings are required | capacity Ability to: Adjust the machine settings according to type of material and customers request | | | plan order | Department of mills |
|--------------------------------------|--|---|--|--|------------|---------------------|

Module6: Maintain & Repair Ring Frame

Objective of the Module: To maintain the ring frames for lasting performance

Duration: ..200..... hours Theory: ..40..... hours Practice:.160..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theor yDay s/hou rs | Workpl ace Days/h ours | Materials Required | Learning Place |
|---|--|--|---------------------|------------------------|--|---------------------------|
| 1. Introduction of dept machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | Knowledge of: Where the safety devices are located and what are its importance Ability to: Run the spin plan as per requirement | 6 | 26 | Observation and catalogue for study of safety switches | Department |
| 2. Awareness of usage of belts, bearings, gears and lubricants. | The learner will get the basic knowledge about the usage of belts type, oil type and bearing type with | Knowledge of: How the different types of belts, bearings, oil number and gears have different application. | 6 | 26 | Catalogue by the manufacturer | Class room and department |

| | | | | | | |
|--|--|---|---|----|--|--|
| | respect to their application | Ability to: Use the proper type at proper place according to machine catalogue recommendation | | | | |
| 3. Prepare operating procedure and schedule for maintenance. | The learner will get the knowledge after how long the machine need to be overhauled and maintained | Knowledge of: Life of parts that need to be changed after specified interval Ability to: Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation | 6 | 26 | Catalogue by the manufacturer and physical observation | Class room and department |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | Knowledge of: What type and brand of parts should be used and after how long these parts are need to be changed Ability to: To produce good product by selecting good parts and replacing them timely. | 6 | 26 | Observation depending on quality parameter reports | Class room/ Spinning Department of mills |
| 5. Demand of spare parts and check its quality and keep its | Which parts are more frequently used and knowledge | Knowledge of: Parts life and cause of premature failure | 8 | 28 | Personally maintained record | Class room/ Spinning Department of mills |

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|---|--|---|---|----|------------------------------|---|
| stock in sub store up to certain level | about its availability for vendors | Ability to: reduce the number of stops due to premature failure of parts and keep them in stock | | | | |
| 6. Follow the production plan and execute changes as per plan | how much production is required to produce specific quality and what settings are required | Knowledge of: Machine capacity Ability to: Adjust the machine settings according to type of material and customers request | 8 | 28 | As per production plan order | Class room/ Spinning Department of mills |

Module7: Maintain & Repair Cone winding (Auto-Cone)

Objective of the Module: To maintain the cone winding machines for lasting performance

Duration: .186..... hours Theory: ..36..... hours Practice:.150..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|---|--|--|-------------------|----------------------|--|----------------|
| 1. Introduction of dept machinery parts and safety rules. | The learner will get the basic knowledge about the process and machinery with parts along with safety rules and switches | Knowledge of: Where the safety devices are located and what are its importance Ability to: Run the spin plan as per requirement | 6 | 24 | Observation and catalogue for study of safety switches | Department |

| | | | | | | |
|---|---|--|---|----|--|--|
| 2. Awareness of usage of belts, bearings, gears and lubricants. | The learner will get the basic knowledge about the usage of belts type, oil type and bearing type with respect to their application | <p>Knowledge of:</p> <p>How the different types of belts, bearings, oil number and gears have different application.</p> <p>Ability to:</p> <p>Use the proper type at proper place according to machine catalogue recommendation</p> | 5 | 21 | Catalogue by the manufacturer | Class room and department |
| 3. Prepare operating procedure and schedule for maintenance. | The learner will get the knowledge after how long the machine need to be over hauled and maintained | <p>Knowledge of:</p> <p>Life of parts that need to be changed after specified interval</p> <p>Ability to:</p> <p>Develop and upgrade the maintenance proceed from time to time according to machine catalogue recommendation</p> | 5 | 21 | Catalogue by the manufacturer and physical observation | Class room and department |
| 4. Execute replacement of parts directly effecting quality. | Study of parts life effecting quality parameters | <p>Knowledge of:</p> <p>What type and brand of parts should be used and after how long these parts are need to be changed</p> <p>Ability to:</p> <p>To produce good product by</p> | 5 | 21 | Observation depending on quality parameter repots | Class room/ Spinning Department of mills |

| | | | | | | |
|--|--|--|---|----|----------------------------------|--|
| | | selecting good parts and replacing them timely. | | | | |
| 5. Demand of spare parts and check its quality and keep its stock in sub store up to certain level | Which parts are more frequently used and knowledge about its availability from vendors | Knowledge of: Parts life and cause of premature failure Ability to: reduce the number of stops due to premature failure of parts and keep them in stock | 5 | 21 | Personally maintained record | Class room/ Spinning Department of mills |
| 6. Follow the production plan and execute changes as per plan | how much production is required to produce specific quality and what settings are required | Knowledge of: Machine capacity Ability to: Adjust the machine settings according to type of material and customers request | 5 | 21 | As per production plan order | Class room/ department of mills |
| 7. Study of compressor, compressed air and filter | Quantity and quality of air required | Knowledge of: How much pressure is required for machine Ability to: Plan the compressed air requirement | 5 | 21 | Catalogue by machine manufacture | Class room/ Spinning Department of mills |

Module 8: Maintain & Repair yarn conditioning and packing

Objective of the Module: To maintain the yarn conditioning and packing machines for lasting performance

Duration: ...114..... hours Theory: ..24..... hours Practice:...90..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|---|---|--|-------------------|----------------------|---|---|
| 1. Prepare maintenance and repair schedules | Can prepare maintenance and repair schedules of any type of machinery setup | Knowledge of: Understand the maintenance catalogue of yarn conditioning machine Understand maintenance requirements of machines Knowledge of preparing schedules Ability to: Prepare maintenance schedules of each machine Prepare chart for display schedules | 3 | 9 | Maintenance Catalogues of yarn conditioning machine Register Ball Pen Ruler Chart Paper | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 2. Prepare demand of spare parts | Can prepare purchase and store issue requisitions | Knowledge of: Understand the importance of inventory keeping Understand the store issue process Understand the purchase process Ability to: Prepare store issue requisitions Prepare purchase requisitions | 2 | 9 | Store purchase requisition Store issue note Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |

| | | | | | | |
|---|---|---|---|---|--|---|
| 3. Inspect the quality of purchased spare parts | Can check the quality of the parts received as samples or purchased, and prepare respective reports | Knowledge of: Understand the quality requirements of each part of machines Ability to: Check the quality of each machinery part Prepare sample checking report Prepare inward purchase inspection report | 3 | 8 | Parts received to inspect Inward store inspection form Samples approval form Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 4. Maintain spare parts' stock in sub-stores | Can prepare inventory record of sub-store Can calculate the sub-store inventory requirements | Knowledge of: Understand the quality requirements of each part of machines Ability to: Check the quality of each machinery part Prepare sample checking report Prepare inward purchase inspection report | 3 | 8 | Spare parts and tools in the sub-store Inventory Register Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 5. Inspect the condition of different parts of machines | Can inspect different machine parts for physical damage/ degradation and quality deterioration | Knowledge of: Understand the physical characteristics of different machine parts Understand wearing of different parts Understand relationship between part wear and quality of material processed Ability to: Check the quality of machine parts Check the quality | 3 | 8 | Yarn conditioning and packing machines Register/ maintenance register (printed if available) Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |

| | | | | | | |
|---|--|--|---|---|--|---|
| | | of material processed by each machine part Record inspection findings | | | | |
| 6. Check the machine settings | Can check settings of different types of machines | Knowledge of: Understand the importance of machine settings Know different machine settings Ability to: Check different setting points of all machines | 1 | 8 | Yarn conditioning and packing machines Pressure gauge Water and steam temperature gauges Vernier caliper Register Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 7. Check the electronic devices on machines | Can inspect the working of different electronic devices e.g., electrical motors (different types), electronic display panels, etc. | Knowledge of: Know about different types of electrical motors Understand different electric panels on yarn conditioning and packing machines and main control panel Ability to: Check working of different electrical motors and display panels Adjust working of machines using these panels | 2 | 8 | Yarn conditioning and packing machines Main control panel | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 8. Do corrective maintenance if necessary | Can perform maintenance and repair of machine parts on occasion of breakage or | Knowledge of: Understand proper tools handling and change Ability to: Change the | 2 | 8 | Yarn conditioning and packing machines Spare parts tools | Class room of vocational training center/ Cone winding and cone packing stores of the spinning |

| | | | | | | |
|---|---|---|---|---|---|---|
| | fault | machine parts efficiently and in a proper way | | | | mills |
| 9. Do scheduled maintenance according to plan | Can perform maintenance and repair of machine parts according to schedule | Knowledge of: Understand proper tools handling and change Ability to: Change the machine parts efficiently and in a proper way | 2 | 8 | Yarn conditioning and packing machines Spare parts tools | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 10. Change the machine settings according to the plan | Can perform machine settings of different machines | Knowledge of: Understand the importance of machine settings Know different machine settings Ability to: Check different setting points of all machines Adjust setting points | 2 | 8 | Yarn conditioning and packing machines Distance gauges Vernier caliper Register Ball Pen Ruler | Class room of vocational training center/ Cone winding and cone packing stores of the spinning mills |
| 11. Check and maintain the RH% and temperature of all departments | Can maintain RH% of all departments | Knowledge of: RH% requirements of all departments Ability to: Control RH% and temperature | 1 | 8 | Psychrometers | Departments of spinning mills |

Module 9: Maintain & Repair roller covering

Objective of the Module: To maintain the roller covering machines for lasting performance

Duration: ...114..... hours Theory: ..24..... hours Practice:...90..... hours

| Learning Unit | Learning Outcomes | Learning Elements | Theory Days/hours | Workplace Days/hours | Materials Required | Learning Place |
|---|---|--|-------------------|----------------------|--|-------------------------|
| LU 1 Introduction of department rubber cots and aprons of the concerned department. | Awareness about the size and other specs of the cots | Learner will get information about the Effect of rubber cots specs on the quality of product | 2 | 8 | | Roller cover Department |
| LU 2 Be aware of how to handle the acids or any other chemicals | Job will be performed safely | Learner will get information how to do the job keeping himself safe | 2 | 8 | Acid, Rubber cots, aprons, treatment table | Department |
| LU 3 Prepare operating procedure and schedule for maintenance | The learner will get informed about the time interval recommend er for cots and aprons to be replaced | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Register, Pen Ruler | Department |
| LU 4 Execute replacement of rubber cots and aprons timely | Effect of quality on size of cots | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: | 3 | 9 | Rubber cots Aprons | Department |

| | | | | | | |
|---|--|--|---|---|--|------------|
| | | Prepare maintenance schedule | | | | |
| LU 5 Keep the record of cots and aprons changed | Feed back for the brand and type of apron can be accessed for future purchase | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 3 | 9 | Register, Pen Ruler | Department |
| LU 6 Demand of spare parts such as cots and aprons | Which parts are more frequently used and knowledge about its availability from vendors | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Register, Pen Ruler Demand requisition | Department |
| LU 7 Inspect the quality of the parts purchased | Inspection of rubber cots and aprons of all departments | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Inspection report pen | Department |
| LU 8 Maintain spare parts' stock of frequently used in sub-stores up to certain level | Record keeping knowledge of parts change | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Stock report pen | Department |
| LU 9 Keep | Preparing of | Knowledge of: | 2 | 8 | Register | Department |

| | | | | | | |
|--|---|--|---|---|-----------------------|------------|
| record of grinding intervals of concerned department | grinding record | Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | | | Pen ruler | |
| LU 10 Prepare cleaning and inspection schedule and keep record | Preparation of cleaning and inspection schedule | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Register Pen ruler | Department |
| LU 11 Daily routine inspection of machines | Can do inspection of machines | Knowledge of: Maintenance schedule of aprons and cots of different departments Ability to: Prepare maintenance schedule | 2 | 8 | Machines | Department |

4. Assessment Template

Module 1: Maintain Blow Room

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|---|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe the names and functions of different machines and their parts | Short answer question test | |
| | | | Rearrange the following items according to type of machine | Choices rearrangement test | |
| | | | Prepare list of machine parts which need maintenance | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about the types of belts, bearings, gears and lubricants | Oral assessment | |
| | | | Prepare a list of belts, bearings, gears and lubricants used in department | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance. | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date of scheduled maintenance | Written exercise | |
| | | | Ask about the maintenance procedures | Oral assessment | |
| LU 4 Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe the spare parts which need change | Practical implementation (Written exercise) | |
| | | | Describe the effect of condition of machine parts on quality of material | Practical implementation | |

| | | | | | |
|--|------|------|--|--|--|
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | Describe the method to make a maintenance schedule accommodating the production plans | Short answer question test | |
| LU 7 Study of compressor, compressed air and filter | 0.25 | 0.5 | Explain the cares of compressor | Written exercise | |
| | | | Explain the method of maintaining the compressor | Oral assessment | |
| | | | Assess the quality of compressed air | Short answer question test | |

Module 2: Maintain and Repair Carding

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|---|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe the names and functions of different machines and their parts | Short answer question test | |
| | | | Rearrange the following items according to type of machine | Choices rearrangement test | |
| | | | Prepare list of machine parts which need maintenance | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about the types of belts, bearings, gears and lubricants | Oral assessment | |
| | | | Prepare a list of belts, bearings, gears and lubricants used in department | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance . | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date of scheduled maintenance | Written exercise | |
| | | | Ask about the maintenance procedures | Oral assessment | |
| LU 4 Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe the spare parts which need change | Practical implementation (Written exercise) | |
| | | | Describe the effect of condition of machine parts on quality of material | Practical implementation | |
| | | | Explain the demand requisition for spare parts | Practical implementation | |

| | | | | | | |
|------|---|------|------|--|--|--|
| LU 5 | Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 | Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | | Describe the method to make a maintenance schedule accommodating the production plans | Short answer question test | |
| LU 7 | Study of compressor, compressed air and filter | 0.25 | 0.5 | Explain the cares of compressor | Written exercise | |
| | | | | Explain the method of maintaining the compressor | Oral assessment | |
| | | | | Assess the quality of compressed air | Short answer question test | |

Module 3: Maintain and Repair Drawing Frame

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|---|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe preventive maintenance | Short answer question test | |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about balancing work among team members? | Oral assessment | |
| | | | Prepare a work plan for maintenance team and display in your store | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance. | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date | Written exercise | |
| | | | Ask about method of converting entries from daily ledger to part record page | Oral assessment | |
| LU 4 Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written exercise) | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |

| | | | | | |
|--|------|------|--|---------------------------------------|--|
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | Rearrange the following parts according to maintenance due time | Short answer question test | |
| LU 7 Study of compressor, compressed air and filter | 0.25 | 0.5 | Demonstrate the production calculations | Written exercise | |
| | | | Explain the efficiency and production relations | Oral assessment | |
| | | | Describe production reports | Short answer question test | |
| | | | Describe different types of wastes in spinning | Oral assessment or Written exercise | |

| | | | | | |
|--|--|--|--|--------------------------|--|
| | | | Explain the schedule for wastes checking | Practical implementation | |
|--|--|--|--|--------------------------|--|

Module 4: Maintain and Repair Lap former and Comber

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|-----------------------------------|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe preventive maintenance | Short answer question test | |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about balancing work among team members? | Oral assessment | |
| | | | Prepare a work plan for maintenance team and display in your store | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance. | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date | Written exercise | |
| | | | Ask about method of converting entries from daily ledger to part record page | Oral assessment | |
| LU 4 Execute replacement of parts | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written | |

| | | | | | |
|--|------|------|--|--|--|
| directly effecting quality. | | | | exercise) | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | Rearrange the following parts according to maintenance due time | Short answer question test | |
| LU 7 Study of compressor, compressed air and filter | 0.25 | 0.5 | Demonstrate the production calculations | Written exercise | |
| | | | Explain the efficiency and production relations | Oral assessment | |
| | | | Describe production reports | Short answer question test | |

| | | | | | |
|--|--|--|--|-------------------------------------|--|
| | | | Describe different types of wastes in spinning | Oral assessment or Written exercise | |
| | | | Explain the schedule for wastes checking | Practical implementation | |

Module 5: Maintain and Repair Roving Frame

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|----------------------------|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe preventive maintenance | Short answer question test | |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about balancing work among team members? | Oral assessment | |
| | | | Prepare a work plan for maintenance team and display in your store | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance. | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date | Written exercise | |
| | | | Ask about method of converting entries from daily ledger to part record page | Oral assessment | |

| | | | | | | |
|------|---|------|------|--|---|--|
| LU 4 | Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written exercise) | |
| | | | | Describe about the use of spares for relevant machines | Practical implementation | |
| | | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 | Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 | Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | | Rearrange the following parts according to maintenance due time | Short answer question test | |
| LU 7 | Study of compressor, compressed air and filter | 0.25 | 0.5 | Demonstrate the production calculations | Written exercise | |
| | | | | Explain the efficiency and production relations | Oral assessment | |

| | | | | | |
|--|--|--|--|-------------------------------------|--|
| | | | Describe production reports | Short answer question test | |
| | | | Describe different types of wastes in spinning | Oral assessment or Written exercise | |
| | | | Explain the schedule for wastes checking | Practical implementation | |

Module 6: Maintain and Repair Ring Frame

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|----------------------------|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe preventive maintenance | Short answer question test | |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about balancing work among team members? | Oral assessment | |
| | | | Prepare a work plan for maintenance team and display in your store | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance. | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about calculation of next due date | Written exercise | |
| | | | Ask about method of | Oral assessment | |

| | | | | | |
|--|------|------|--|---|--|
| | | | converting entries from daily ledger to part record page | | |
| LU 4 Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written exercise) | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | Rearrange the following parts according to maintenance due time | Short answer question test | |
| LU 7 Study of compressor, compressed | 0.25 | 0.5 | Demonstrate the production calculations | Written exercise | |

| | | | | | |
|----------------|--|--|---|-------------------------------------|--|
| air and filter | | | Explain the efficiency and production relations | Oral assessment | |
| | | | Describe production reports | Short answer question test | |
| | | | Describe different types of wastes in spinning | Oral assessment or Written exercise | |
| | | | Explain the schedule for wastes checking | Practical implementation | |

Module 7: Maintain and Repair Cone winding (Auto-Cone)

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|--|----------------------------|-----------------|
| LU 1 Introduction of department machinery parts and safety rules. | 0 | 0.5 | Describe preventive maintenance | Short answer question test | |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Awareness of usage of belts, bearings, gears and lubricants. | 0 | 0.25 | Ask about balancing work among team members? | Oral assessment | |
| | | | Prepare a work plan for maintenance team and display in your store | Practical implementation | |
| LU 3 Prepare operating procedure and | 0 | 0.25 | Prepare a record sheet for making entries | Practical implementation | |
| | | | Ask about | Written | |

| | | | | | |
|--|------|------|--|---|--|
| schedule for maintenance. | | | calculation of next due date | exercise | |
| | | | Ask about method of converting entries from daily ledger to part record page | Oral assessment | |
| LU 4 Execute replacement of parts directly effecting quality. | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written exercise) | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 5 Demand of spare parts and check its quality and keep its stock in sub store up to certain level | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment | |
| | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise | |
| LU 6 Follow the production plan and execute changes as per plan | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise | |
| | | | Explain it with direct observation to the stock | Practical implementation | |
| | | | Rearrange the following parts according to maintenance due time | Short answer question test | |

| | | | | | |
|---|------|-----|---|-------------------------------------|--|
| LU 7 Study of compressor, compressed air and filter | 0.25 | 0.5 | Demonstrate the production calculations | Written exercise | |
| | | | Explain the efficiency and production relations | Oral assessment | |
| | | | Describe production reports | Short answer question test | |
| | | | Describe different types of wastes in spinning | Oral assessment or Written exercise | |
| | | | Explain the schedule for wastes checking | Practical implementation | |

Module 8: Maintain and Repair Yarn Conditioning and Packing

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|--|--------------|-----------------|--|---|---------------------------------------|
| LU 1 Prepare maintenance and operating procedures of each AC station | 0 | 0.5 | Describe preventive maintenance | Short answer question test | AC plants of all spinning departments |
| | | | Rearrange the following items according to maintenance due time | Choices rearrangement test | |
| | | | Prepare maintenance schedule for the following parts of machines | Practical application | |
| LU 2 Prepare demand of spare parts | 0.25 | 0.25 | Describe about spare parts. | Practical implementation (Written exercise) | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |

| | | | | | |
|------|---|---|--|--|---------------------------------------|
| | | | Explain the demand requisition for spare parts | Practical implementation | |
| LU 3 | Inspect the quality of purchased spare parts | 0 | 0.25 | Describe the method of checking purchased spare parts' quality | Oral assessment |
| | | | | Describe the method of recording results of quality inspection onto sample approval form | Written exercise |
| LU 4 | Maintain spare parts' stock in sub-stores | 0 | 0.25 | Describe the maintained schedule of parts in stock | Oral assessment plus Written exercise |
| | | | | Explain it with direct observation to the stock | Practical implementation |
| | | | | Rearrange the following parts according to maintenance due time | Short answer question test |
| LU 5 | Inspect the condition of different parts of machine | 0 | 0.5 | Demonstrate the inspection schedule | Practical implementation |
| | | | | Describe the parts quality features | Practical implementation |
| | | | | Explain the life of parts of relevant machine | Oral assessment |
| LU 6 | Check the machine settings | 0 | 0.25 | Tell about the machine parts and setting | Oral assessment or Written exercise |

| | | | | | |
|---|---|------|--|--------------------------------------|--|
| | | | Mention the advantages and disadvantages of settings | Oral assessment and Written exercise | |
| LU 7 Check the electronic devices on machines | 0 | 0.25 | Explain about the different types of electronic devices | Oral assessment | |
| | | | Explain the connections of electronic devices | Practical implementation | |
| | | | Explain the use of electronic devices with respect to machine | Oral assessment and Written exercise | |
| LU 8 Do corrective maintenance if necessary | 0 | 0.5 | Explain the methods to do corrective maintenance for all parts of the spinning mills | Oral assessment Written exercise | |
| | | | Describe the preventive measures to avoid accidental breakage of parts | Oral assessment and Written exercise | |
| LU 9 Do scheduled maintenance according to plan | 0 | 1 | Explain scheduled maintenance plan | Practical implementation | |
| | | | Explain the rules to set schedule of maintenance for different parts | Oral assessment and Written exercise | |
| | | | Describe the different maintenance methods | Oral assessment and Written exercise | |

| | | | | | |
|---|---|-----|--|--------------------------------------|--|
| LU 10 Change the machine settings according to the plan | 0 | 1 | Explain the effect of machine settings on quality and production | Oral assessment and Written exercise | |
| | | | Demonstrate the gauge settings | Practical implementation | |
| LU 11 Check and maintain the RH% and temperature of all | 0 | 0.5 | Explain the method to read RH% | Oral assessment | |
| | | | Control RH% according to plan | Practical implementation | |

Module 9: Maintain and Repair Roller Covering

| Learning Units | Theory hours | Workplace hours | Recommended formative assessment | Recommended Methodology | Scheduled Dates |
|---|--------------|-----------------|---|----------------------------|-----------------|
| LU 1 Introduction of department rubber cots and aprons of the concerned department. | 0 | 0.5 | Describe the sizes of aprons and cots | Short answer question test | |
| | | | Prepare list of parts to change | Choices rearrangement test | |
| LU 2 Be aware of how to handle the acids or any other chemicals | 0 | 0.25 | Ask about dangers associated with acids | Oral assessment | |
| | | | Describe the cares for acids and other chemicals | Practical implementation | |
| LU 3 Prepare operating procedure and schedule for maintenance | 0.25 | 0.25 | Describe the importance of preparing maintenance schedule | Written exercise | |
| | | | Describe about the use of spares for relevant machines | Practical implementation | |

| | | | | | | |
|-------|--|------|------|--|----------------------------|--|
| LU 4 | Execute replacement rubber cots and aprons timely | 0 | 0.25 | Describe method of changing parts | Oral assessment | |
| | | | | Implement change of aprons and rubber cots | Written exercise | |
| LU 5 | Keep the record of cots and aprons changed | 0.25 | 0.5 | Tell about importance of record keeping | Written exercise | |
| | | | | Describe the record entries | Short answer question test | |
| | | | | Do the record entries in the register | Practical implementation | |
| LU 6 | Demand of spare parts such as cots and aprons | 0.25 | 0.5 | Prepare demand of spare parts | Practical implementation | |
| LU 7 | Inspect the quality of the parts purchased | 0.25 | 0.5 | Describe the check points for quality inspection of different parts | Oral assessment | |
| | | | | Do inspection of parts | Practical implementation | |
| LU 8 | Maintain spare parts' stock of frequently used in sub-stores up to certain level | 0.25 | 0.5 | Prepare the stock register of spare parts | Practical implementation | |
| LU 9 | Keep record of grinding intervals of concerned department | 0.25 | 0.5 | Prepare the record of grinding of rubber cots of different departments | Practical implementation | |
| LU 10 | Prepare cleaning and inspection schedule and keep record | 0.25 | 0.5 | Prepare the schedule of maintenance of rubber cots and aprons | Practical implementation | |
| LU 11 | Daily routine inspection of machines | 0.25 | 0.5 | Do routine inspection of machines | Practical implementation | |

Supportive notes:

- **Assessment context:**

The trainees will be periodically assessed on completion of each module. The final assessment will be on completion of course.

- **Critical aspects:**

1. Skill of adjusting machines' settings,
2. Knowledge and ability to control machine wastes,
3. Training for proper and careful handling of machinery and equipment,
4. Training of taking care of personal safety at workplace,

- **Considerateness with customers:**

Punctuality, straight forwardness, speaking truth, good listening habits, stress on soft language, respect of teacher and the colleagues, respect and care for the subordinates, care of machinery

- **Assessment condition:**

1. The learner will have access to all tools,
2. The learner will be permitted to look at reference materials, e.g., machinery catalogues
3. The learner will be required to undergo periodic assessments at the workplace which will be both knowledge based and skill based
4. The learner may be required to give presentation on the required topic.

- **Resources required for assessment:**

Spinning mills machinery, single line ruled (printed or plain) sheets, stationery including pen, pencil, rubber, sharpener, ruler (1 ft), ruler (2 ft), spinning mills maintenance and setting tools, hygrometer, etc.

5. List of Tools, Machinery & Equipment

| | |
|---------------|--|
| Name of Trade | Certificate in Textile Machinery Repair and Maintenance (Spinning) |
| Duration | 1 year |

| Sr. No. | Name of Item/ Equipment / Tools | Qty. |
|---------|--|--------|
| 1. | Spinning machines (spinning unit) | 1 |
| 2. | Ring spanner (Different Sizes) | 1 each |
| 3. | Key spanner (Different Sizes) | 1 each |
| 4. | L-Key Set (Different Sizes) | 1 each |
| 5. | Socket set | 1 |
| 6. | Pliers | 1 |
| 7. | Plastic hammer | 1 |
| 8. | Copper hammer | 1 |
| 9. | MS hammer (mild steal hammer) | 1 |
| 10. | Wrench (torque and screw) | 1 each |
| 11. | Torch | 1 |
| 12. | Leaf gauge | 1 |
| 13. | Vice | 1 |
| 14. | File set | 1 each |
| 15. | Chain block | 1 |
| 16. | Puller | 1 |
| 17. | Screw driver set | 1 each |
| 18. | Spirit leveler | 1 |
| 19. | Measuring tape and scale | 1 |
| 20. | Techo-meter | 1 |
| 21. | Lifting jack | 1 |
| 22. | Hydraulic jack | 1 |
| 23. | Greasing and oil guns | 1 |
| 24. | Different types of bearings (Depending upon Usage) | |
| 25. | Different types of flat and V belts (Depending upon Usage) | |
| 26. | Timing belt (Different Sizes) | 1 each |
| 27. | Hygrometer | 1 |
| 28. | Vernier Caliper | 1 |
| 29. | Distance gauges (Different Sizes) | 1 each |
| 30. | Water temperature gauge (if not supplied with yarn conditioning machine) | 1 |
| 31. | Calculator | 1 |

6. List of Consumable Supplies

| | |
|---------------|--|
| Name of Trade | Certificate in Textile Machinery Repair and Maintenance (Spinning) |
| Duration | 1 year |

| Sr. No. | Name of Consumable Supplies |
|---------|---|
| 1. | Cotton |
| 2. | Other processing material (fibers) |
| 3. | Oils of various grades used in the mills |
| 4. | Greases of various grades used in the mills |
| 5. | Chart paper |
| 6. | Register |
| 7. | Pen |
| 8. | Pencil |
| 9. | Rubber |

7. Contributions for Development of This Curriculum

DACUM Working Group

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