TEXTILE PROCESSING TECHNOLOGY

LEVEL I

Based on February, 2021, Curriculum Version 1

Module Title: - Performing handling of materials and load shifting equipment

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Table of Contents

Acknowledgment

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Acronym

PPE	Personal Protective Equipment
SOP	Standard Operating Procedures
WHS	Work Health and Safety
OH&S	Occupational health and safety
NIOSH	National Institute for Occupational Safety and Health
NFPA	The National Fire Protection Association's
KPIs	key performance indicators
UGDC	United Gas Delivery Company
TTLM	Teaching, Training and Learning Materials
LAP	Learner Activity Performance

Introduction to this Module

Material handling can be defined as: “art and science of conveying, elevating, positioning, transporting, packaging and storing of materials starting from the time, the raw material. In the Textile wet processing industry, material handling is mandatory activity to transport and dispatch the wet processing inputs and outputs to the required place. This module is designed to enhance the trainees with the required skills and knowledge to perform tasks to handle materials and use load-shifting equipment in association with its operational maintenance in wet processing.

This module covers the units:

- General production tasks and job requirements
- General cleaning duties and pre-checkup of equipment
- Operate and monitor Load shifting equipment
- Transfer or removal of materials or products where required
- Documentation

Learning Objective of the Module

- Perform general production tasks and determine job requirements
- Perform general cleaning duties and pre-checkup of equipment
- Operate and monitor load shifting equipment
- Assist in transfer or removal of materials or products where required
- Complete documentation

Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. Perform Operation Sheets which were provided at the end of units
4. Do the “LAP test” giver at the end of each unit and
5. Read the identified reference book for Examples and exercise

Unit one: General production tasks and job requirements

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Duties and tasks
- Equipment and tools
- Procedural and tasks questions
- Standard operating procedures
- Work health and safety
- Personal protective equipment (PPE)
- Job requirements

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Clarify required duties and tasks with a supervisor or team member.
- Organize and check require equipment and tools.
- Follow standard operating procedures.
- Comply with work health and safety.
- Use appropriate personal protective equipment.
- Identify job requirements.

1.1. Duties and Tasks in wet processing

Introduction

Textile wet processing, which includes pre-treatment, coloration/ dyeing, printing, washing and finishing, is a crucial stage in textile manufacturing. The different wet processing steps are responsible for allowing textile products achieve a specific look, feel and function. In order to maintain industrial peace and work in the spirit of harmony and cooperation worker-employer relations should be governed by law. Basic rights of employees should be respected by the employers and the employees should render their obligations to the employers.

1.1.1. Responsibilities of Load shifting device operator

The person in control of load shifting equipment is responsible for:

- Identifying and controlling hazards.
- Advising anyone who affected by the load shifting work of the hazards and control measures.
- Establishing communication channels in order to receive and/or give instructions to perform their duties safely.
- Following safe work practices and take action to prevent any person being placed at risk by the use of the plant.
- Operate appropriate load shifting device and dispatch the input and output.

A person conducting a business or undertaking is responsible for:

- Ensuring that operators have received adequate information and training, and are supervised, so that any risks to health and safety are minimized. The amount of information, instruction, training or supervision required must take into account the complexity of the tasks, the operator's current skills and ability and other workers on site.
- Ongoing training to maintain the operator's competency level, particularly with new models of plant or equipment, and ensure new workers are able to undertake the work safely.
- The application of all other general duties regarding health and safety.

1.1.2. Duties of Textile Finishing Supervisor

Carries out supervisory responsibilities in accordance with the organization's policies and applicable laws. Responsibilities include training employees; planning, assigning, and directing work; appraising performance; rewarding and disciplining employees; addressing complaints and resolving problems in a timely manner.

The responsibility of textile finishing supervisor are as follows;

- Responsible for carrying out the fabric finishing process.
- Implements and maintains the safety program in the production departments of the location.
- Makes employees aware of job hazards directly and through subordinate supervisors and hourly leaders.
- Ensures proper safety training of employees and compliance with company safety rules and procedures.
- Leads and directs the production activities for the production departments for the location across all shifts.
- Clarifies and coordinates tasks and provides individual coaching and support needed to keep team committed to achievement of defined goals.
- Audit processes for fabric quality issues and non-conformance to departmental and company policies.
- Collaborate with employees and managers to solve work-related problems.
- Plan work schedules and assign duties to maintain adequate staff for effective performance of activities and response to fluctuating workloads.
- Monitor performance to department goals and communicates with employees.

1.1.3. Job roles of machine operator in textile wet processing

Textile factory workers perform routine tasks in textile factories, such as upholstery and curtain fabrics, delivering materials to machines, operating automatic machines using computerized machinery, finished the fabric, inspecting and packing finished textile products. The brief description of wet processing machine operators tasks as follows;

a) **Singeing Machine Operator**; tends singeing machine to burn fluff and rough protruding fibres on cloth to get better finish. Adjusts cloth roll at feed-end of machine. Runs loose end of cloth through guides and feeds it through rollers. Lights burners in machine and regulates flow of gas to obtain desired flame.

b) **Stentering Operator**; Tentering Machine Man (Textile) tends stentering machine or frame which dries and restores original width of cloth after dyeing, washing or finishing. Adjusts stenter frames according to width of cloth. Starts machine. Ensures that cloth passes through machine without damage from stenter clips and is properly stretched. Cleans and oils machine.

c) **Jigger Machine Operator**; dyes cloth by operating jigger machine. Fits undyed cloth rolls on machine and passes one end of rolled cloth carefully through vat on to other roller for making rolls of dyed cloth. Prepares dyeing solution of required shade, pours it into jigger vat and ensures that cloth passing through vat is completely dipped in dyeing solution. Starts machine.

d) **Padding Mangle Operator**; tends padding machine for treating cloth with light preliminary coat of dye or chemicals preparatory to further processing. Mounts cloth roll on machine and passes loose end of cloth through guide-rollers and trough to roller at opposite side. Pours dye or chemical solution into trough of machine and ensures that cloth is completely dipped in it. Cleans and oils machine.

e) **Dyeing Machine Operator**; tends kier (vat for boiling yarn or cloth) for bleaching and dyeing. Puts chemicals in tanks and lets in water and opens steam to boil chemical solution. Puts cloth or yarn into kier with help of Piler ensuring that cloth or yarn is properly piled. Closes and secures mouth of kier and pumps chemical solution from tank into kier.

f) **Printing Master (Textile);** organize, direct and supervise printing of cloth in various designs ensuring quality, output and smooth running of printing department. Arrange for supply of necessary chemicals and dyes. Check mixing of colours in required proportions for printing purpose.

1.2. Equipment and tools

Tools and equipment are two words that are often used synonymously, mainly due to the similarities of their meanings. Because of this factor, they can be used interchangeably in most instances. Equipment usually denotes a set of tools that are used to achieve a specific objective.

1.2.1. Cleaning equipment

The term ‘cleaning equipment’ is very broad. There are many different types of equipment, like pressure cleaners, sweepers and polishers, but also vacuum cleaners. It is important to

choose the right equipment for a certain cleaning job. Pressure cleaners are machines that use high-powered steam to get rid of stains and dirt. They are especially ideal for cleaning concrete regions such as walls, patios, and walkways.

Figure 1.1. Industrial cleaning stock

Overall, cleaning equipment can be categorized into two types:

A. Manual Equipment

B. Mechanical Equipment

A. Manual Equipment: Manual cleaning equipment is dependent on the operation and energies of the employees. Maximum efforts and techniques are applied by the cleaning staff with the assistance of some equipment.

1. **Microfiber Cloth:** Microfiber cloth is an ideal tool to wipe down surfaces in rooms, bathrooms and common areas. They can be washed up to 500 times and are a very durable product. It is soft and shouldn't scratch surfaces.

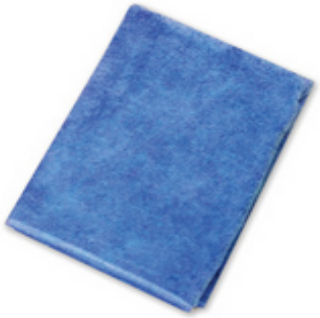


Figure 1.2 Microfiber cloth

2. **Abrasives:** Abrasives are made of grit papers which can be used to clean wooden or metal surfaces.

Figure 1.3 Abrasives

3. **Different Types of Brushes :** Hard floor brush, soft floor brush, scrubbing brush, toilet brush, flue brash, feather brush, broom, hand brush, etc. are the different kind of brushes used to eradicate superficial or ingrained grimes depending on the nature.

Figure 1.4 Different types of brushes

4. **Brooms:** Can be used to clean hard surfaces for a quick dust up of dirt or hairs.

Figure 1.5 Brooms

B. Mechanical Equipment: Either electric or battery power is needed to operate this type of equipment. These mechanical machines will ease labor and speed up cleaning time and efficiently.

1. **Vacuum Cleaner** A vacuum cleaner is a commonly used cleaning machine. It is suitable for any kind of floor or upholstery surface and easy to operate.

Figure 1.6 Vacuum Cleaner

2. **Polishing Machine:** A polishing machine works to get back the lost shine of your floor.

Figure 1.7 Polishing Machine

3. **Floor scrubber:** This is a very versatile cleaning machine to have on hand. It can wash, scrub and dry tiles, carpets, hard floors, safety mats, industrial floors and more.

Figure 1.8 Floor scrubber

4. **Steam vapour Machine:** A steam vapour machine is a great to have in your list for steam cleaning equipment for housekeeping. It will provide you with a complete deep

clean, which includes both a visual and a sanitized clean. The machine should produce steam heated up to +165 degrees Celsius.

Figure 1.9 Steam vapour Machine

1.2.2. Chemicals and detergents

A. Cleaning Agents

Different cleaning agents are used depending on the item to be cleaned, the cleaning method and the type of soiling found on the item. Maintaining a regular cleaning and sanitizing schedule is integral to preventing illness. There are four main types of cleaning agents:

1. Detergents

Detergents are the most common type of cleaning agent and are used in home and commercial kitchens. They work by breaking up dirt or soil, making it easy to wash it away. The detergents used in commercial kitchens are usually synthetic detergents made from petroleum products and may be in the form of powder, liquid, gel or crystals.

2. Degreasers: Degreasers are sometimes known as solvent cleaners and are used to remove grease from surfaces such as oven tops, counters and grill backsplashes.

3. Abrasives: Abrasives are substances or chemicals that depend on rubbing or scrubbing action to clean dirt from hard surfaces.

4. Acids: Acid cleaners are the most powerful type of cleaning agent and should be used with care. If they are not diluted correctly, acid cleaners can be very poisonous and corrosive. Acid cleaners are generally used to remove mineral deposits and are useful for removing rust from restroom facilities.

1.2.3. Hand tools

A hand tool is any tool that is powered by hand rather than a motor. Categories of hand tools include wrenches, pliers, and cutters, files, striking tools, struck or hammered tools, screwdrivers, vises, clamps, snips, hacksaws, drills, and knives.

Figure 1.10 Hand tools

1.2.4. Hand trolleys

A hand truck, also known as a hand trolley, dolly, stack truck, trundler, box cart, sack barrow, cart, sack truck, two wheeler, or bag barrow, is an L-shaped box-moving handcart with handles at one end, wheels at the base, with a small ledge to set objects on, flat against the floor when the hand-truck is upright. Hand trolleys are designed to give your back the rest it deserves. Simply load and wheel your cargo across long or short distances effortlessly.

Figure 1.11 Hand trolleys

1.2.5. Weighing equipment

Weighing is an important operation in gravimetric analysis. Usually it involves the use of an electronic balance with a minimum readability of 0.1 mg. In order to ensure reproducible results, sample handling is very critical especially when hygroscopic materials are weighed.

Figure 1.22 Electronic balance

1.2.6. Forklift and pallet trucks

The forklift truck, pallet carrier or guided forklift is a lifting and handling device mainly used to transfer loads. It is normally used in factories, storage warehouses, for loading and unloading trucks, containers, wagons, etc. Different traction systems (generally with heat engines driven by gas or diesel), more or less powerful, enable an effective use irrespective of the terrain, both indoors and outdoors. It is suitable for hectic production activity as well as for long-distance transportation. It is able to bear loads of up to 8 tons, and offers a lifting height of up to 8 meters.

Figure 1.33 Forklift truck

A pallet truck has a low height lift, not more than around twenty centimeters. This handling equipment is therefore suited for handling at ground level and transporting a load on a pallet. Pallet trucks are not designed for stacking. Manual, semi-electric, or electric, both use and applications of pallet trucks are very simple.

1.2.7. Fixed and attachable job arms

A Material Handling Arm is useful in virtually all types of industries including industrial, construction, agricultural, and landscaping. It can pick, carry and load a variety of materials and equipment. The heavy duty design is also well suited for road construction, pipe laying, and other contracting jobs.

Figure 1.44 Attachable job arms

1.2.8. Storing traveling cranes and chain blocks

After use all load shifting equipment and tools must be stored in appropriate place.

1.3. Procedure and tasks in wet processing

Textile wet processing normally includes pretreatment (or preparation), coloration (dyeing or printing), and finishing. Finishing is the final step in the fabric manufacturing process and it gives special functionalities to textiles. Textile materials in different forms, such as fiber, yarn, woven fabric, knitted fabric may be subjected to different textile wet processing operations. In which way grey fabric is dyed is called wet process technology. Normally wet processing depends on buyer's demand.

Figure 1.55 Textile wet processing (dyeing)

Textile wet processing is carried out either in batches, a continuous process, or a combination of the two. The choice of processing method depends on a number of factors, including the volume of fabric to be processed, the steps required, and the cost.

In batch processing, the fabric and calculated amounts of chemicals and water are put into a single vessel and stirred and heated as necessary. If there are several processes to be carried out on the same batch of fabric, the vessel may have to be emptied and cleaned between processes, making this method time-consuming. Batches of up to 1000 yards of fabric, and sometimes more, may be processed in this way.

Continuous processing uses a series of vessels, each of which represents one processing step. The combination of processing vessels is known as the range, and the total number of vessels in the range can be as many as 20 or more. The fabric is passed from one vessel to the next in the correct sequence for the processes being carried out. Continuous processing can reach speeds of 100 yards of fabric per minute. Because some fabric will be wasted when the range is first set up and adjusted to optimize performance, continuous processing is best for large yardages of fabric.

1.4. Standard operating procedures

Standard operating procedures for tools and equipment are not only about following safety protocols. The safe operating procedures should be designed to minimise or eliminate hazards, such as injury or death to the user. Using hand and power tools in any work setting is dangerous, so it's essential for everyone who does use them to follow safe practices.

1.4.1. Standard Operating Procedures for Tools

Standard operating procedures for equipment will help you identify and implement safety procedures to protect employees from the hazards of hand and portable power tools and document compliance with regulatory requirements. Procedures are as follows:

- Responsibilities imposed by health and safety legislation require a person conducting a business or undertaking, such as an industry owner carrying out high-risk work, to prepare standard operating procedures that identify hazards and control risks with the operation of tools and equipment.
- With well documented standard operating procedures the performance of tasks at your business becomes much easier because all employees are running according to the same plan. This, in turn, leads to better consistency and productivity.

It is important to keep safety and health in mind when working with tools and equipment. The WHS team has created safe operating procedures to help you do that.

- This gives workers the necessary insight into the risks involved in using tools and staying safe when undertaking a task.

1.4.2. Elements of Standard Operating Procedures (SOP)

Elements of Standard Operating Procedures include:

- Work health and safety consultation with workers for input on hazards, risks and solutions.
- Pre-start inspection of tools used in a work task to ensure tool and equipment safety.
- Methods by which to identify faulty, defective or non-compliant plant and equipment.
- The requirement to not alter or modify plant and equipment.
- Incompatible components or parts fitted to or used in connection with a tool.
- The method by which to safely operate the tool to eliminate the risk of injury or death.
- Environmental hazards in the workplace having the potential to be a hazard.
- Work at height hazards and control measures when operating a tool to undertake a work task.
- Hazardous manual tasks requiring the safe handling of tools and equipment
- Residual hazards resulting from the operation of tools requiring PPE as a control measure.
- Training provided to workers to explain safety measures in the use of tools and equipment.
- Good housekeeping practices in the workplace assists with slips, trips and falls prevention.
- Monitor and review control measures to ensure the health and safety of workers.

1.5. Work health and safety

Work health and safety (WHS): Sometimes called occupational health and safety (OH&S) involves the management of risks to the health and safety of everyone in workplace. This includes the health and safety of anyone who does work for workers as well as customers, visitors and suppliers.

1.5.1. Benefits of Work health and safety

Creating a safe work environment is a legal requirement. It's also critical to the long term success of task/work:

- Help you keep your staff
- Improve staff productivity
- Reduce injury and illness in the workplace
- Reduce the costs of injury and workers' compensation.

1.6. Personal protective equipment

A Personal Protective Equipment (PPE) is clothing or equipment designed to reduce employee exposure to chemical, biological, and physical hazards when on a worksite. It is used to protect employee's hazard and illness/injuries and to reduce the risks to acceptable levels.

1.6.1. Importance of Personal Protective Equipment

According to the hierarchy of controls by the National Institute for Occupational Safety and Health (NIOSH), PPE is recommended to be the last level of defence to prevent occupational injuries, illnesses, and fatalities, but some businesses combined it with other control measures to ensure a safe and healthy environment for their workers. Here are some benefits of using PPEs:

- Prevent unnecessary injury in the workplace;
- Protect employees from excessive chemical exposure;
- Help businesses comply with regulatory requirements(e.g., The Personal Protective Equipment at Work Regulations 1992 that's recently been extended to limb workers); and
- Improve employee productivity and efficiency.

The following are basic PPE that can help protect employees:

Figure 1.66 Personal Protective Equipment (PPE)

1.7. Job requirements

Job requirements are the skills, experiences and qualities an employer deems necessary for a candidate to be considered for a role. Job requirements also called prerequisites or qualifications are an important part of any job description and cannot be overlooked by either the employer or prospective employee. Job requirements should include all the technical or "hard" skills needed to carry out job responsibilities, as well as any "soft" or interpersonal skills that are valuable to the role.

- **Technical or 'hard' skills requirements**

What technical skills are needed to succeed in this role? Which are you willing to train for? The skills and expertise that you can't provide on-the-job training for should be listed in your job requirements. Omit skills that you are willing and able to teach from your job requirements. Otherwise, you may miss out on a truly great candidate almost a quarter of professionals won't apply to a role if they don't match the requirements.

- **'Soft' skills requirements**

Interpersonal skills are arguably more important than hard skills it's harder to teach or perform tasks. In fact, according to research conducted by LinkedIn in 2018, communication skills are the number-one quality candidates on the job market lack. Moreover, according to

research by the Carnegie Melon Foundation and Stanford Research Institute International, long-term success depends 75 percent on interpersonal skills and only 25 percent on technical know-how.

Self-Check-1.1	Written Test

Directions: Answer all the questions listed below.

Part I. Multiple choose: Choose the correct answer for the following question.

_____ 1. Which one of the following ***is not*** manual cleaning equipment?

A. Broom B. Brush C. Vacuum Cleaner D. Abrasives

_____ 2. One of the following is the responsibility of load shifting device operator?

A. Monitor performance to department goals.

B. Operate appropriate load shifting device.

C. Adjusts cloth roll at feed-end of machine.

D. Operate singing machine.

_____ 3. Which one of the following is load shifting device?

A. Polishing machine B. Steam Machine C. Hand trolley D. Hand tools

Part II. Matching

Direction: Match column **"A"** with the descriptions in Column **"B".** Write the letter of the correct answer on the provided space.

Column "A"	**Column "B"**
_____1. Forklift truck	A. Job requirements
_____2. Eye google	B. Cleaning agent
_____3. Prerequisites	C. Personal protective equipment
_____4. Detergents	D. Lifting them in the air
_____ 5. Hand truck	E. Low height lift
	F. Hand trolley

Part III. Short Answer

Give short answer for the following questions

1. What are the elements of standard operating procedures?
2. What is Personal Protective Equipment?

OPERATION SHEET 1.1

Operation title	**Organizing and checking require equipment and tools**.
Purpose	To organize and check the required equipment and tools to perform tasks related cleaning and material handling.
Equipment tools and materials	• Cleaning Equipment • Chemicals And Detergents • Hand Tools • Hand Trolleys • Weighing Equipment • Front end loader/back hoe, ride on forklift and pallet trucks • Fixed and attachable job arms
Conditions or situations for the operation	The operation process can be performed by following the procedure and steps illustrated on the information sheet.
Procedures	1. Review learning guide 2. Identify necessary equipment & tools 3. Organize the cleaning and material handling equipment 4. Check the equipment and tools 5. Ready the equipment for cleaning and load shifting operation
Precautions	Follow the correct procedure/steps in listed above. Perform the given operation based on the operational requirement
Quality criteria	The operation can be performed by following occupational health and safety rule. Use of proper OHS materials • Safe operation of machines and correcting operational faults • Use of technical specifications manuals • Performing quality standards and practices • Applying OHS practices, including hazard control measures • Recording and reporting production data

LAP TEST

LAP test 1.1	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 3 hours.

Task 1. Identify cleaning and material handling equipment.

Task 2. Check the tools and equipment for the operation.

Task 3. Organize the tools and equipment.

Unit Two: General cleaning duties and pre-checkup of equipment

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Cleaning duties
- Work Healthy Safety practices
- Cleaning equipment
- Cleaning liquids handling, storage and disposal procedures
- Cleaning
- Load shifting device
- Routine pre-use checks
- Set up work area and load shifting device
- Non-compliance
- Minor maintenance

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Clarify cleaning duties
- Apply WHS practices
- Determine, prepare and use cleaning equipment
- Implement clean liquids handling, storage and disposal procedures
- Assess cleaning
- Select load shifting device
- Undertake routine pre-use checks
- Set up work area and load shifting device
- Report non-compliance

- Perform minor maintenance

2.1. Cleaning duties

A Cleaner is a service industry worker who ensures the workplace is always clean and sanitary. They perform a range of duties, including dusting or mopping and sweeping floors. They also make sure restrooms and common areas stay fresh by performing routine inspections every day at specified times.

Cleaner responsibilities include:

- Cleaning, stocking and supplying designated facility areas (dusting, sweeping, vacuuming, mopping, cleaning ceiling vents and etc.)
- Performing and documenting routine inspection and maintenance activities.
- Carry out heavy cleaning tasks and special projects.

2.2. Work Healthy Safety practices

Workplace safety is an important part of any job and requires that everyone in the company adhere to the safety guidelines and policies in place. Carefully following appropriate safety guidelines can go a long way toward preventing workplace injuries. Here are some ways you can work to stay safe on the job.

- Be Aware
- Use Equipment Properly
- Take Breaks regularly
- Locate Emergency Exits
- Report Safety Concern
- Practice Effective Housekeeping
- Make use of mechanical Aids
- Reduce Work place stress
- Use Appropriate safety Equipment

2.2.1. Hazard identification and control

Hazard: A condition, object, activity or event with the potential of causing injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function. It can be considered as a dormant potential for harm which is present in one form or another within the aviation system or its environment. This potential for harm may be in the form of a natural hazard such as terrain, or a technical hazard such as wrong runway markings. 'Bow-tie' also refers to the methodology used to build such diagram.

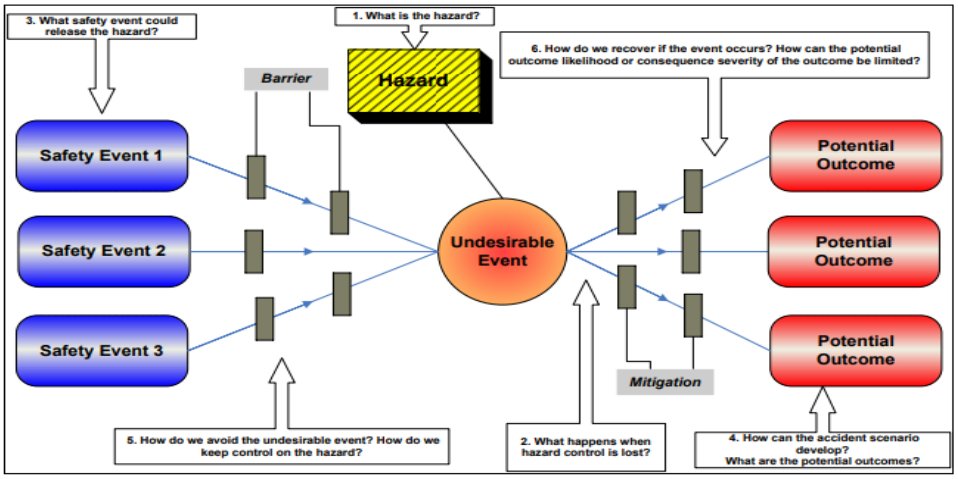


Figure 7.1 'Bow-Tie' Diagram illustrating definition of terms

There are three basic management control strategies to eliminate or reduce exposure to hazards:

Practices. Some of these practices are very general in their applicability. They include housekeeping activities such as:

- Using personal protective equipment (PPE).
- Placing warning signs that inform and restrict access
- Removing tripping, blocking, and slipping hazards
- Removing accumulated toxic dust on surfaces
- Wetting down surfaces to keep toxic dust out of the air

Procedures. These procedures apply to specific jobs in the workplace.

- Permit-required confined space entry procedures
- Lockout/Tag out procedures
- Fork-lift safety inspection procedures

Schedules. Measures aimed at reducing employee exposure to hazard by changing work schedules. Such measures include:

- Lengthened rest breaks

- Additional relief workers
- Exercise breaks to vary body motions
- Rotation of workers through different jobs

Table 2.1 Sample job hazard analysis worksheet

Basic Job Step	Hazards Present	Safe Job Procedure
1.Ensure that trailer is correctly spotted.	1. Worker could be caught between backing trailer and dock. Worker could fall from the dock.	1. Stay clear of the doorway while the trailer is being backed onto the dock. Keep others away from the area. Remove awareness chain or bar from the front of the dock door once the trailer is properly spotted.
2. Chock wheels; place jacks under trailer nose. .	2. Worker could fall on stairs going to dock well. Worker's head could be struck against trailer. Worker could slip on ice or snow.	2. If the truck driver has not chocked the wheels, go down tile ramp/stairs to the dock well and chock the wheels. Use caution when walking on snow or ice. Hold onto hand rails; use ice-melt chemical if needed. When placing the chock, avoid bumping the head on the underside of the trailer. Place jacks under the nose of the trailer. If the dock is equipped with an automatic trailer restraint, push the button to activate the device.

2.2.2. Risk assessment

Risk: the combination of the predicted frequency and severity of the consequences of hazard(s) taking into account all of the potential outcomes.

Risk assessment is one of the functions in a Safety Management System and an important element of safety risk assessment is the identification of hazards.

The risks can be identified via direct observation in the field of the overall loading and unloading activities undertaken by workers.

Stages of risk assessment are:

1) Decomposition of the type of work, type of activities in the order based on the process of loading and unloading process.
2) Identification of potential hazards, potential hazards can be done by conducting direct observations at the port, observations made for all activities undertaken at the port.
3) Assessment of severity conducted risk assessment process with attention to important aspects of severity.
4) Categories: catastrophic, critical, marginal, and negligible. Severity is measured by the impact of an accident. Assessment of severity using the hazard severity classification table can be seen in Table 2.2.

5) Frequency assessment, at this stage the process of the frequency of the occurrence of accidents or the possibility of emergence of hazard by using hazard exposure classification table that can be seen in Table 2.3.

Table 2.2. Classification of severity

Description	Category	Score	Mishap Definition
Catastrophic	I	4	Death or loss of system
Critical	II	3	Severe injuries that cause permanent disability
			Severe illness due to work
			Severe system breakdown
Marginal	III	2	Medium injury, requiring only medical treatmentMild illness due to work
			Partial system damage
Negligible	IV	1	Mild injuries, requiring only first aid
			Damage to a small part of the system

Table 2.3 : Classification of frequency of exposure to hazards.

Description	Level	Score	Specific Individual Item
Frequent	A	5	Often occur, repeatedly in the system
Probable	B	4	Occurs several times in the system cycle
Occasional	C	3	Occurs sometimes in the system cycle
Remote	D	2	Never happened but it may happen in the system cycle
Improbable	E	1	Unlikely, never happen

2.2.3. Implementation of risk reduction measures

The textile industry is among the oldest in the world. It's also among the most global sectors because most companies serve the international apparel and textile market. But the dynamic global landscape has changed consumer preferences, driven cost volatility, and brought new risks in the landscape.

Risk reducing measures include frequency reducing and consequence reducing activities, and their combinations. The measures may be of a technical, operational, and/or organizational nature. Choosing the types of measures is normally based on a broad evaluation, where risk aspects are considered. Layout arrangements are suitable for the operations and minimize the exposure of personnel to accidental loads.

A hierarchical approach to risk reduction is designed to:

a) Eliminate and minimize hazards by design (inherently safer design),
b) Prevent (reduction of likelihood),
c) Detect (transmission of information to control point),
d) Control (limitation of scale, intensity and duration),
e) Mitigate consequences (protection from effects), and
f) Emergency response plans (spill, well control, blow out, drive off/drift off, etc.).

Risks must be assessed from highest to lowest, to assure reduction measures result.

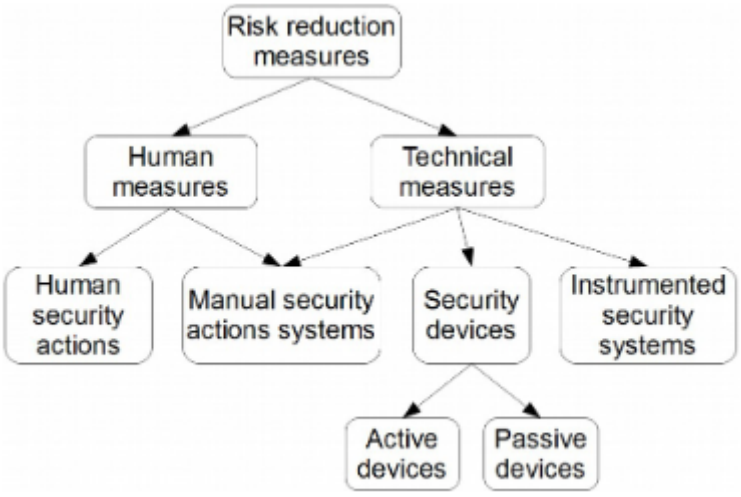


Figure 2.2. Diagram of Risk reduction measures

2.3. Cleaning equipment

The term ‘cleaning equipment’ is very broad. There are many different types of equipment, like pressure cleaners, sweepers and polishers, but also vacuum cleaners. It is important to choose the right equipment for a certain cleaning job.

i. **Pressure cleaners** are machines that use high-powered steam to get rid of stains and dirt. They are especially ideal for cleaning concrete regions such as walls, patios, and walkways. They can ideally be used to clean cars, Lorries, and caravans. Pressure cleaners come in various shapes and sizes.
ii. **A sweeper** is controlled by a driver who sits on a commercial sweeper and use a driving wheel to steer the device. These are especially useful for cleaning vast outdoor areas like the pavement outside a huge commercial place or on roads.
iii. **A carpet cleaner** is another essential. These cleaners have the ability to remove stubborn stains from almost any carpet area. They are quite essential when it comes to

cleaning as they are one of the best devices to remove hard to budge stains without the need to replace the carpets.

iv. **Scrubbers** are designed to clean stains from hard floored regions. They are ideal for use in huge commercial buildings that have wood or marble flooring.

v. **A polisher** is another essential equipment when it comes to commercial cleaning. A polisher is able to turn a dirty hard floor it a brand new in a timely fashion. Polishers are usually used in institutions such as universities, schools, museums and hospitals.

I. How cleaning equipment should be cleaned and stored

One way to potentially cut expenses is to better maintain and even perform light repairs on the cleaning equipment they use every day specifically, vacuum cleaners and automatic floor machines.

During the operation, the squeegees help gather and remove moisture, along with soil, lint, hair, and other debris. Some of this debris can rip or tear the squeegees, affecting the performance of the machine and the appearance of the floors. Dirty, torn, or uneven squeegees can produce streaks and lines on a clean floor.

2.4. Cleaning liquids handling and disposal procedures

In the cleaning industry, the handling and storage of cleaning chemicals is often overlooked or mismanaged in safety evaluations and audits, which can have major consequences. Proper handling and storage of products is essential to a safe workplace, and routine inspections should be performed annually to remain efficient and protect your team. By following a few simple steps, you can ensure your facility is not only clean, but safe as well.

a) An Effective Chemical Safety Program is Key

Following a strict chemical safety program is one of the most important steps to ensure the proper handling and storage of cleaning chemicals. Here's a few things your chemical safety program should include:

- A complete list of all cleaning chemicals used in the facility.
- Documentation on the potential hazards associated with each chemical, as well as a Safety Data Sheet (SDS) for each cleaning product.
- Clearly-labelled cleaning products.
- Properly trained employees with access to training resources as needed.
- Safety signage conveniently placed around your facility.

b) Training Your Staff on Cleaning Chemical Safety

Training your staff to use and store cleaning chemicals properly is just as critical as providing necessary documentation. Many cleaning chemicals can be flammable or corrosive posing risk to the user. There can be dangerous consequences when employees mistake high-risk chemicals for low-risk chemicals, so a good rule of thumb is to familiarize all employees with the following "signal words" and where they typically appear on containers:

- **Caution:** the product should be used carefully but is relatively safe.
- **Warning:** the product is moderately toxic.
- **Danger:** the product is highly toxic and may cause permanent damage to skin and eyes.

c) Choosing the Proper Location for Cleaning Chemicals

Even with proper documentation and training, improper storage of your cleaning chemicals can be just as dangerous as product misuse. Choosing the safest location for each chemical should also be part of your chemical safety program. Some specifications of your storage space should include:

- Store in a clean, cool, dry space. Some cleaning chemicals can have hazardous reactions when they experience extreme temperature fluctuations or high levels of humidity.
- Store in well-ventilated areas, away from intake vents. This helps prevent any fumes from spreading to other areas of the facility.
- Store no higher than eye level, and never on the top shelf of a storage area.
- Do not overcrowd shelves and include anti-roll lips to avoid falling containers.
- Never store cleaning chemicals on the floor, even temporarily.

2.4.1. Handling Cleaning Chemicals and Maintaining Storage Areas

Handling your cleaning chemicals safely and ensuring that standards are upheld is probably the most important aspect of proper cleaning chemical storage. All containers should be properly sealed and kept in either their original container or an appropriate container for their hazard class. Different chemicals should never be mixed, even if they are similar "types" of chemicals. Proper documentation, training, location, organization, handling, and maintenance of your cleaning chemical storage protocol will eliminate risks and ensure safety in your operations.

i. Properly handling cleaning agents

Remember that exposure to chemicals used in cleaning agents can lead to skin irritations, chemical poisoning, respiratory problems and, in extreme cases, even death. Best practices for handling cleaning agents include:

- Storing chemicals in a secure place in their sealed original containers, well away from food or any equipment may come into contact with food
- Wearing personal protective equipment required to be worn when handling the product, such as gloves or safety glasses
- following the manufacturer's instructions when using the product or disposing of the product
- cleaning and sanitising cleaning equipment such as brushes, mops and other janitorial tools after use and storing them in a well maintained, dry, locked area using different cloths for wiping and cleaning, and replacing them regularly

2.5. Cleaning

Cleaning is only the first step to a germ-free. Cleaning is done using detergent, but it doesn't kill bacteria or other microorganisms that can cause food poisoning. To kill bacteria and ensure a clean workplace, you must follow cleaning with sanitizing.

Highlights: How to assessing cleaning performance?

- Cleaning performance indicators, differing by assessment criteria, are proposed.
- We report new data for the area cleaned by moving impinging jets.
- The cleaned region width decreases strongly with increasing jet moving speed.
- Within certain limits the performance indicators increase with jet moving speed.

Cleaning quality management and maintenance are important for a lot of public spaces and especially for shopping centers. Customers, tenants and visitors don't want to come to an unclean and unsanitary space, particularly for their shopping needs.

The five 5 suggestions/way on how to assess the quality of cleaning and maintenance.

1. Set up the necessary feedback channels

Customers and tenants have valuable insight into the cleanliness and maintenance your property. And they have an experience that you may not have as the manager. Thus, it is important for you to get feedback from them to improve your customer experience. Make sure that customers and tenants know about this channel.

2. **Create a checklist**

Create a predetermined checklist that inspectors and cleaners can use to make sure that all areas are cleaned well at all times. Individuals have subjective takes on what might look clean to them, so you want to make sure that all areas meet your cleanliness standard.

3. Establish clear goals and key performance indicators (KPIs)

Establish and share cleaning and maintenance goals that all people in your organization should strive to meet. From these goals, you can set up KPIs to track the progress and standard of cleaning at all times. KPIs can include customer feedback, appearance, health conditions, etc.

4. Adhere to general health and sanitation standards

There are global and regional conditions and standards that all public facilities need to meet. Look to organizations like the National Health Service (NHS), and World Health Organization (WHO).

5. Have different cleanliness systems

There are different systems that you can consider for checking the cleanliness of your facility. You can use clever mobile auditing platforms, physical testing tools, and digital and electronic devices. Consider tools that check moisture levels, air quality, high traction tools that prevent slip and fall incidents, etc.

2.6. Load shifting device

Selection of material handling equipment's

There are two most important aspects for analyzing or solving a material handling problem are: engineering aspect, and economic aspect. Engineering factors include: the condition of existing building and plant layout, production processes and equipment's, nature of materials and products to be handled, usefulness and effectiveness of existing material handling equipment. The economic factors include the cost of material handling equipment, operating costs, repair and maintenance costs and taxes etc.

The choice of a particular equipment depends upon specific requirements or the condition of an industry. For selection of Material handling equipment, the following factors should be taken into account.

A. **Type/shape of materials to be transported:** The size of material, its shape, weight, delicacy and its chances of getting damaged during handling etc. should be considered.

B. Mill building and layout: The route of material movement, width of doors and aisles, inequality in floor levels, height of the ceiling, strength of floor and walls, columns and pillars etc. to a great extent influence the choice of a material handling equipment.

C. Machine production: Different machines have different outputs per unit time. Load shifting equipment should be able to handle the maximum output.

D. Type of material flow pattern: A horizontal flow pattern will need trucks, overheads bridge cranes, conveyors etc. whereas a vertical flow pattern will require elevators, conveyors, pipes etc.

E. **Types of production:** The selection of the material handling equipment depends a great extent on type of production such as: mass production and batch production.

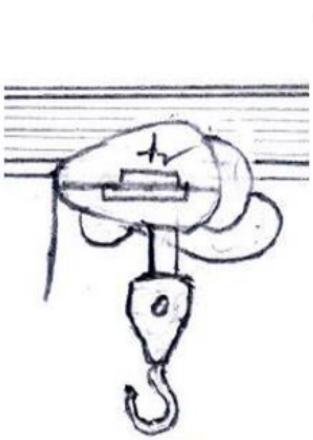
2.6.1. Carts

Cart is a strong open vehicle with two or four wheels typically used for carrying loads and pulled by a horse.

Figure 2.3. Cart

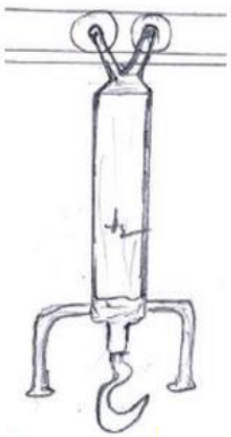
2.6.2. Overhead cranes

Overhead crane is a large machine that moves heavy things by lifting them in the air. They can handle heavy material through overhead space. However, they can serve only a limited area. Hoists are of tree type: electrical, chain type and pneumatic.



a. Electrical hoist

b. Chain hoist



c. Pneumatic hoist

Figure 2.4. Overhead cranes

2.6.3. Trolleys

Trolley is a small vehicle with two or four wheels that you push or pull to transport large or heavy objects.

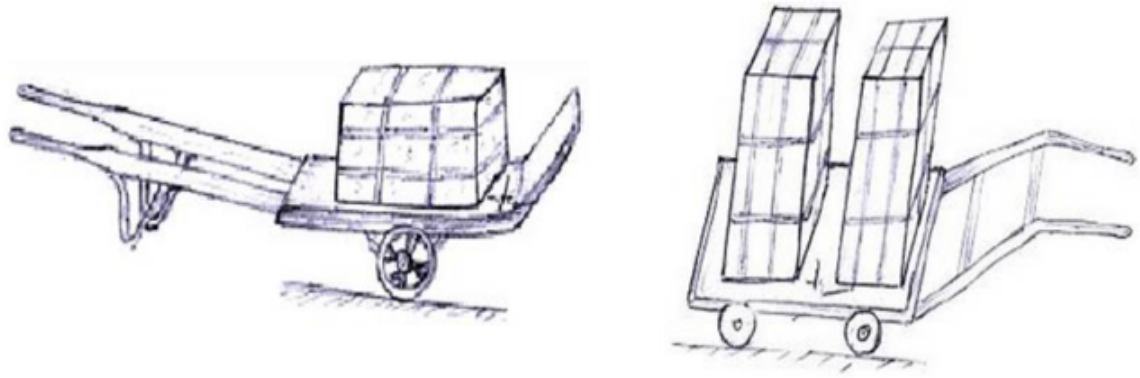


Figure 2.5. Wheeled industrial trucks/trolleys

2.7. Routine pre-use checks

The most appropriate load shifting equipment is selected based on the types of work. Routine checks the equipment in accordance with manufacturer specifications & safety regulations. Safety regulations are regulations to avoid the risks & hazards that may result during the operations. The risk that may occur includes:

- The risk of load drop/fail on the operators
- Risks of body injure by rotating parts of the equipment & etc.

2.8. Set up work area and load shifting device

Lifting operations are inherent to many occupations in the construction industry. They can be performed manually or using lifting equipment. Both manual lifting and mechanical lifting operations can put workers at great risk of injury or health symptoms causing sick leave or disability.

A lifting operation is an operation concerned with the lifting and lowering of a load. A load is the item or items being lifted which could include a person or people. A lifting operation may be performed manually or using lifting equipment. Manual lifting, holding, putting down, carrying or moving is often referred to as ‘manual handling of loads’.

The Setup of working area and load shifting device are depends up on the weight and the physical structure of the loads. Before shifting the loads the operator should be set and arrange the passing ways for load shifting device. It helps to reduce load shifting related injuries and smooth the transition of materials. Load shifting device should be set up before operating. Routing maintenance is mandatory to keep the device in the normal operational situation.

2.9. Non-compliance

During the operation with load shifting equipment's, we use operation manual of the equipment. If there is non-compliance with this manual or preset specification, report to the concerned body for repair or replacement.

Safety is of utmost importance, and all employees have a duty to ensure the safety of themselves and others. In order to do so, you must have a sound understanding of health, safety, and risk management procedures as well as how they apply to the workplace and high risk work activities. High-risk work activities put workers in danger, so you need to implement control measures to reduce the risks they face. Risk management begins with the hierarchy of control, which are control measures for managing risk.

2.10. Minor maintenance

Maintenance is defined as a process in which working condition of plant or machinery is maintained at the optimum level as to give maximum output. Maintenance is done through repair, partial replacement and total replacement. Minor maintenance is the process of repairing damaged parts of load shifting equipment. E.g. Repairing/replacing broken handle of load shifting equipment.

Why cleaning the surface of load shifting equipment? Because the dusts occupied the surface of any machine deteriorate the surface of machine as a result the life span of the machine will be reduced. Following is the significance of the maintenance policy:

- Maintenance policy ensures that equipment's are always in ready and reliable condition. This ensures company is able respond to any sudden change in demand.
- Maintenance policy ensures that equipment's are always calibrated to provide good-quality products and competitive advantage. This ensures that there are no sudden and frequent breakdowns and reduce production of defective products.

- Maintenance policy ensures that there are no major breakdowns. This ensures there is no loss of inventory or market share for companies following JIT philosophy.
- Maintenance policy ensures that costs are always controlled.
- Maintenance policy is particularly important in capital-intensive industries.

If organizations are not able to implement an effective maintenance policy than it can result in the following results:

- Full capacity utilization may not be achieved.
- Increase in production cost as fixed labor cost cannot be reduced.
- Increase in maintenance cost as more spare parts are required.
- Reduction in product quality and increase in wastage.
- Safety of workers and operators in jeopardy.

a) Maintenance Management

Maintenance management is process where available resources are regulated in a manner that plant and machinery can perform at specific levels. Maintenance management involves planning, scheduling and execution of maintenance-related activities. The main objectives of the maintenance management are as follows:

- Minimum level of production loss and minimum incidence of breakdown.
- Minimum level of wastage.
- Optimum usage of maintenance equipment and personnel.
- Quality of product is improved.

b) Planning and Scheduling

The maintenance department is responsible with planning and scheduling of maintenance in line with the requirement and expectation of the organization. Planning and scheduling needs to ensure that business as usual is not disturbed.

The following are key points to plan maintenance:

- Identify the equipment for maintenance and technique for maintenance.
- Categorize maintenance into routine, priority and emergency.
- Plan maintenance considering cost, time, space etc

- Material planning for maintenance requirements.
- Budget time and money requirements.

The need to schedule maintenance can be best described as follows:

- To optimize usage of plant, machinery and tools.
- To optimize usage of manpower in maintenance.
- To ensure smooth production flow.

Self-Check-2.1	Written Test

Directions: Answer all the questions listed below.

Part I. Multiple Choose

Choose the correct answer for the following question. Answer on the provided space.

_____1. One is an important part of any job and requires that in the company?

A. Reduce work place stress
B. Workplace Safety practices
C. Use Appropriate
D. Make use of mechanical Aids

_____ 2. Which one of the following is a service industry worker who ensures the workplace is always clean and sanitary?

A. Operator B. Cleaner C. Supervisor D. Team leader

_____ 3. One of the following ***is not*** ways work to stay safe on the job?

A. Practice Effective Housekeeping
B. Use Equipment Properly
C. Take Breaks regularly
D. Align materials

_____ 4. Which one of the following of a large machine that moves heavy things by lifting them in the air.

A. Hand trolley B. Overhead crane C. Cart D. Hand Truck

Part II. Short Answer: Give short answer for the following questions.

1. What are a great extent influence the choice of a material handling equipment?
2. Why cleaning the surface of load shifting equipment?
3. Write the factors of selecting load shifting device.
4. Define Minor maintenance means.

Operation Sheet 2.1

Operation title	**Performing minor maintenance**
Purpose	To perform the minor maintenance of load shifting device.
Equipment tools and materials	• Carts • Overhead cranes • Trolley • Lubricate • Towel
Conditions or situations for the operation	The operation process can be performed by following the procedure and steps illustrated on the information sheet and listed below procedures.
Procedures	1. Review learning guide 2. Identify the equipment for maintenance and technique for maintenance. 3. Categorize maintenance into routine, priority and emergency. 4. Plan maintenance considering cost, time, space etc. 5. Material planning for maintenance requirements. 6. Perform minor maintenance
Precautions	Perform the given operation based on the operational requirement
Quality criteria	The operation can be performed by following occupational health and safety rule. Use of proper OHS materials • Safe operation of machines and correcting operational faults • Use of technical specifications manuals • Performing quality standards and practices • Applying OHS practices, including hazard control measures • Recording and reporting production data

LAP TEST

LAP test 2.1	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hours.

Task 1. Perform minor maintenance.

Unit Three: Operate and monitor load shifting equipment

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Load shifting device
- Lifting and placing loads
- Safe and efficient movement path
- Environmental requirements and waste management procedures

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Operate load shifting device
- Lift and place loads
- Use safe and efficient movement path
- Check and monitor movement path
- Environmental requirements and waste management procedures

3.1. Load shifting device

Material handling is a systematic and scientific method of moving, packing and storing of material in appropriate and suitable location. The main objectives of material handling are as follows:

- It should be able determine appropriate distance to be covered.
- Facilitate the reduction in material damage as to improve quality.
- Reducing overall manufacturing time by designing efficient material movement
- Improve material flow control
- Creation and encouragement of safe and hazard-free work condition
- Improve productivity and efficiency
- Better utilization of time and equipment

Load shifting equipment operation is simply letting the load move from one place to other place by different mechanisms as per specification given on their manual. Example: using cranes, forklift, trolleys and etc.

Monitoring load shifting equipment on other hands; controlling the above listed tools when they are under operation. The equipment is operated with in design specifications & safe working load. Material handling operations are designed based upon principles as discussed above. Material handling equipment consists of cranes, conveyors and industrial trucks.

3.2. Lifting and placing loads

Lifting heavy items is one of the leading causes of injury in the workplace. In 2001, the Bureau of Labor Statistics reported that over 36 percent of injuries involving missed workdays were the result of shoulder and back injuries. Overexertion and cumulative trauma were the biggest factors in these injuries. Bending, followed by twisting and turning, were the more commonly cited movements that caused back injuries. Strains and sprains from lifting loads improperly or from carrying loads that are either too large or too heavy are common hazards associated with manually moving materials.

3.2.1. Principles of Material Handling

Material handling principles are as follows:

- **Orientation Principle:** It encourages study of all available system relationships before moving towards preliminary planning.
- **Planning Principle:** It establishes a plan which includes basic requirements, desirable alternates and planning for contingency.
- **Unit Load Principle:** Handle product in a unit load as large as possible
- **Space Utilization Principle:** Encourage effective utilization of all the space available
- **Ergonomic Principle:** It recognizes human capabilities and limitation by design effective handling equipment.
- **Simplification Principle:** Encourage simplification of methods and process by removing unnecessary movements
- **Safety Principle:** Encourages provision for safe handling equipment according to safety rules and regulation
- **Computerization Principle:** Encourages of computerization of material handling and storage systems.
- **Layout Principle:** Encourages preparation of operational sequence of all systems available.
- **Cost Principle:** Encourages cost benefit analysis of all solutions available
- **Maintenance Principle:** Encourages preparation of plan for preventive maintenance and scheduled repairs.
- **Obsolescence Principle:** Encourage preparation of equipment policy as to enjoy appropriate economic advantage.

Lifting Stages

1. Preparation
2. Lifting
3. Carrying
4. Setting Down

1. Preparation

Before lifting or carrying, plan out your lift. Think about:

- How heavy/awkward is the load? Should I use mechanical means (e.g. a hand truck) or another person to help me with this lift? Is it possible to break the load into smaller parts?
- Where am I going with the load? Is the path clear of obstructions, slippery areas, overhangs, stairs, and other uneven surfaces? Are there closed doors that need to be opened?

2. Lifting

Get as close to the load as possible. Try to keep your elbows and arms close to your body. Keep your back straight during the lift by tightening the stomach muscles, bending at the knees, keeping the load close and centered in front of you, and looking up and ahead.

3. Carrying

Do not twist or turn the body; instead, move your feet to turn. Your hips, shoulders, toes, and knees should stay facing the same direction. Keep the load as close to your body as possible with your elbows close to your sides

4. Setting Down

Set the load down in the same way you picked it up, but in the reverse order. Bend at the knees, not the hips. Keep your head up, your stomach muscles tight, and do not twist your body. Keep the load as close to the body as possible.

3.2.2. Important Things to Remember

- Use mechanical means (e.g. hand trucks, pushcarts, etc.) when possible for heavier or awkward loads. Remember to obtain training and authorization before using a forklift.
- It is easier and safer to push than to pull.
- Keep loads as close to the body as possible and do not twist while lifting, carrying, or setting down a load. Nose, shoulders, hips, and toes should all be facing the same direction.
- Use personal protective equipment where needed, such as gloves with good grip and steel-toed boots where appropriate.
- Implement rest breaks and job rotation for frequent and/or heavy lifting.
- Place items to be lifted within the “power zone”. The power zone is close to the body, between the mid-thigh and mid-chest of the person doing the lifting. This is the area where the arms and back can lift the most with the least amount of effort.

3.3. Safe and efficient movement path

As per working manual the operator need to select best movement path for load shifting equipment’s in order to reduce risks on equipment’s, load/materials and person also.

i. Weight of Objects

Heavier loads place greater stress on muscles, discs, and vertebrae. Where possible, use mechanical means such as forklifts or hand trucks to transport heavy items. Ramps can be helpful in moving heavy items from one level to another. Materials that must be manually lifted should be placed at "power zone" height: about mid-thigh to mid-chest of the person doing the lifting. Ensure that proper lifting principles are used. Try to order supplies in smaller quantities and/or break loads up into smaller, lighter quantities where possible. Is the container itself heavy? Perhaps a smaller or lighter container is available.

ii. Awkward Postures

Bending while lifting causes several problems for the back. It adds the weight of the upper body to the weight of the object being lifted. Bending and/or reaching moves the load away from the body and allows leverage to significantly increase the effective load on the back, leading to stress on the lower spine and muscle fatigue.

iii. High-Frequency and Long-Duration Lifting

Holding items for long periods, even if loads are light, increases the risk of back and shoulder injury since muscles can be starved of nutrients and waste products can build up. Repeatedly exerting, such as when pulling wire, can fatigue muscles by limiting recuperation times. Inadequate rest periods do not allow the body time to recover.

iv. Inadequate Handholds

Inadequate handholds, such as boxes without handles or oddly-shaped loads, make lifting more difficult, move the load away from the body, lower lift heights, and increase the risk of contact stress and of dropping the load.

3.4. Environmental requirements and waste management procedures

3.4.1. Procedure

a) Waste Handling

This section is explaining 'temporary' storage of waste materials, collection areas, and storage and handling practices for the full range of waste products generated at UGDC facilities. The correct identification and segregation of waste is fundamental to good waste management practices and must be followed by the generator of the waste. Materials are to be deposited in the appropriate waste collection containers. No waste is to be thrown in to surrounding areas of the facility. All personnel have the responsibility to help ensuring the application of this procedure.

b) Waste receiving

The waste issuing department will fill the internal waste disposal request form (FM-29-02) before send the waste to the waste yards, after form approval by the involved parties the

original copy is kept in the ware house department and carbon copy is kept in site HSE office, the third copy is kept in the waste disposal requester.

c) Waste Segregation

Separate waste collection containers are provided, in order to prevent any ambiguity in segregation of waste, for the following waste categories:

➢ **Non Hazardous Waste**

- Scrap metal and wood
- Domestic waste
- Office waste like papers
- Air filters
- Sanitary sewage
- Plastic

➢ **Hazardous Waste**

• Paint related waste
• Hydrocarbon Filters
• Florescent lamps
• Oil rags
• Laboratory samples
• Industrial water
• Lubricating and hot oils
• Gas emission

3.4.1. Environmental Monitoring and Measuring Plan

The following table illustrates the environmental monitoring plan of United Gas Delivery Company (UGDC) aspects, indicating the periodical measures which are taken to control the emissions of such environmental aspects. UGDC is committed to implement any required corrective actions to insure compliance with all legal requirements.

Table 3.1. Sample the environmental monitoring plan

Environmental Aspect	Frequency of measuring	Responsibility	Remarks
Oily Water	3 months	Suez Canal University	
Sewage Water	3 months	Suez Canal University	The lab do some double checks
Gas emissions	3 months	Suez Canal University	
Suspend Dust	3 months	Suez Canal University	
Lighting	Annually	UGDC Electrical	
Noise	Annually	UGDC Safety & Suez Canal University	

Self-Check-3.1	Written Test

Directions: Answer all the questions listed below.

Part I. Multiple choose: Choose the correct answer for the following question.

_____ 1. One of the following is a systematic method of moving, packing and storing of material?

A. Material handling C. Ergonomic Principle

B. Simplification D. Abrasives

_____ 2. Which One of the following ***is not*** the lifting Stages of material?

A. Preparation B. Lifting C. Carrying D. Hand trolley

_____ 3. One of the following is true about procedures of waste management? ?

A. Waste handling --- Waste receiving ---- Waste Segregation

B. Waste receiving --- Waste segregation ---- Waste handling

C. Waste segregation --- Waste handling ---- Waste receiving

D. Waste segregation --- Waste receiving---- Waste Handling

Part II. Matching

Direction: Match column **"A"** with the descriptions in Column **"B".** Write the letter of the correct answer on the provided space.

Column "A"	**Column "B"**
_____1. Plastic	E. Lifting stage
_____2. Cranes	F. Principle of material handling
_____3. Setting down	G. Personal protective equipment
_____4. Unit load	H. Non- hazardous waste
_____ 5. Hazardous waste	G. Hydrocarbon filters

H. Material handling equipment

Part III. Short Answer

Operation Sheet 3.1

Operation title	Operating load shifting device
Purpose	To operate load shifting device for material handling
Equipment tools and materials	• Trolley
Conditions or situations for the operation	The operation process can be performed by following the procedure and steps illustrated on the information sheet and listed below procedures.
Procedures	1. Review learning guide 2. Check load shifting device 3. Prepare load 4. Lifting the load on the device 5. Carrying 6. Setting Down 7. Shifting the Load 8. Placing the load safely 9. Record appropriate information and tasks
Precautions	Perform the given operation based on the operational requirement. And apply workplace healthy and safety procedures.
Quality criteria	The operation can be performed by following occupational health and safety rule. Use of proper OHS materials • Safe operation of machines and correcting operational faults • Use of technical specifications manuals • Performing quality standards and practices

Give short answer for the following questions.

1. What are main objectives of material handling?
2. Write the principles of material handling.

- Applying OHS practices, including hazard control measures
- Recording and reporting production data

LAP TEST

LAP test 3.1	**Practical Demonstration**

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 3 hours.

Task 1. Operate Load shifting device.

Unit Four: Transfer or removal of materials or products

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Task requests
- Materials transfer assistance
- Handling techniques

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Receive task requests
- Provide materials transfer assistance
- Methods and manual handling techniques

4.1. Task requests

The process of communication always contains messages, which are to be transmitted between the parties. There are two parties - one is 'Sender', who sends the message and the other 'Receiver', who receives it. Generally the process of communication is said to be complete when the receiver understands the message and gives the feedback or response.

Work instructions define procedures for processes. The workplace instructions test is designed to measure candidates or employees ability to:

- Efficiently and effectively comprehend written instructions.
- Apply the written instructions when performing tasks.

The instruction from different organs in workplace should require the appropriate response. The expected act upon instructions from workers is used for effective workplace communication. This increase the productivity and performance of any organization.

- **Instructions can be transferred from:-**
  - Supervisors / managers
  - Workers / employees
  - Customers / clients
- **These instructions from other body should be:-**
  - Understood at the first stage
  - Ask clarification if there is a problem
  - Implement / exercise according to the instructions
  - Give response for the instruction

4.2. Materials transfer assistance

Textile wet processing as a term may be new to many, but the definition of the word is actually quite simple: wet processing, simplified, includes everything that adds a liquid on the textile to attain certain qualities on the finished product. These liquids include water, dyes, and chemicals, softeners used to improve textiles in terms of looks or qualities.

As one can imagine, textile wet processing is a big part of textile production and happens in all parts of the production chain: pretreatment of the fabric, dyeing or printing and finishing the product or the fabric.

Fabric pretreatment is a process that is used to remove impurities from fabric to make it dye able or printable. For example, natural fabrics can naturally contain some impurities, or some impurities may be in touch of the fabric during the weaving or storing before processing the fabric further.

Dyeing textiles can be achieved through dyeing of the fibers, yarns or sewn fabrics in order to end up with a product in the desired colour. Most forms of textile materials can be dyed almost at any stage. The dyes used depend on the type of the fabric or material and the specific requirements to be met.

Printing is a process where dyes or pigments are applied to the fabric in the form of patterns. There are different ways to apply the colour (for example screen printing, digital printing, heat transfer and roller printing), but the process is usually fairly similar: a thicker, dryer paste of dye is applied and inserted on the fabric using the method chosen, and the excess is rinsed or washed away with water.

Finishing is the last part of manufacturing and is used in order to change the natural function of a fabric and to enhance its look or feel, making the final product more attractive to the customer. Some examples for benefits after the finishing process are for wet resistance: think of a waterproof coating on an outdoor jacket for example. While being useful, these processing steps usually encompass not only wasting a lot of water, but also the use of toxic dyes and chemicals making the fashion industry one of the biggest environmental polluters.

4.3. Handling techniques

4.3.1. Loads and Handling

Fork lift trucks must only be used to lift loads within their certified capacity. Loads must be correctly placed and secured on the forks to avoid tipping forwards or sideways. Wherever possible, fork lift trucks must be driven with the forks in the lowered position and with the mast slightly tilted back. The forks should be so adjusted that the fork heels should never

touch the ground. Movement with loads in excessively raised positions must be avoided to minimize the danger of toppling, especially on uneven surfaces and while cornering.

Fork lift trucks must only be used for loads which can be carried safely on the forks or attachments fitted. Non-standard, un-packaged and excessively wide loads must be avoided wherever possible. In particular, long tubes must be carried using appropriate attachments.

4.3.2. General Operations

- Operators must not carry passengers anywhere on the fork lift truck.
- Operators must not allow pedestrians to walk underneath the load.
- A load must not be picked up if someone is standing close to it.
- Fork lift trucks must only be driven in a direction where visibility is not blocked.
- Stacking and un-stacking on inclines must never be attempted.
- Rapid acceleration, hard braking and sharp cornering which increase the risk of load tipping must be avoided.
- Operators must exercise caution and drive slowly on slopes, uneven and damaged surfaces.
- Particular care must be taken when operating in proximity to pedestrians and other vehicles.
- Operators must obey site traffic regulations or, in their absence, must keep to the left.

4.3.3. Manual lifting techniques

Back injuries are one of the most common types of industrial accident and although they may occur at a specific time, they are usually the result of many years of incorrect manual lifting. Back injuries can be prevented by proper lifting and the correct manual lifting technique is described below.

- Keep the chin in and do not let the head drop forwards or backwards.
- Take up a crouching or squatting position by bending the knees while keeping the back straight; this does not necessarily mean vertical. The important thing is not to bend the back.
- Take a firm grip of the object to be lifted, using the palm of the hands and the roots of the fingers. Wherever possible, grip diagonally opposite corners of the load, one of them underneath.

- Keep the arms as close to the body as possible allowing the body, rather than the shoulders, arms or wrists, to take the weight.
- Straighten the legs and use the thigh muscles to achieve the lift. When lifting from the ground, take up the squatting position and allow the legs to do all the work.
- Lift in stages, i.e. from floor to knee and from knee to carrying position. When lifting and in the carrying position, the leading foot must be pointing in the direction of travel.
- Avoid standing with a heavy load; if you must stop, set it down by reversing the lifting procedure described in the previous step.
- Do not carry a load which obstructs your view and always ensure that your line of travel is clear of obstructions.
- Never attempt to change your grip while actually carrying a load. If a change is necessary, set the load down on a firm support, change your grip and lift the load up again.
- If the object to be handled is too heavy or awkward, get help. The lifting method for two or more people is the same as for one person. If mechanical lifting devices are available, use them.

Self-Check-4.1	Written Test

Directions: Answer all the questions listed below.

Part I. Short Answer: Give short answer for the following questions.

1. Define work instruction.
2. How to measure candidates or employees ability for workplace instructions test?
3. What are the requirements of interpreting the workplace information?
4. What does acting upon instructions mean?
5. From whom instructions can be transferred?
6. What should be instructions from other bodies?

Unit Five: Documentation

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- Work area operations information
- Dispatch and movement
- Documentation

This unit will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Relay on work area operations information
- Complete receipts records, dispatch and movement
- Interpret documentation

5.1. Work area operations information

Internal communication is an “essential element in business mix” (Mounter & Smith, 2008). The effective channels of communicating with employees and supervisors are significant in realizing the business goals and establishing a harmonious work environment. It may be linked with ‘change management’, ‘transformation’ or ‘reputation management’ (Quirke, 2008). The paper will making comparisons among different internal communication tools and analyze he feasibility, functionality and effectiveness in the background of textile industry.

Considering the textile industry is a labor-concentrated and a rather older industry, some new strategies will be put forward to merge communication tools into the industry. In the later part, the future perspectives of the communication channels in the field of textile will be predicted based on some assumptions and the observation of the current trends. Textile industry is a labor concentrated industry which is prosperous in areas of large populations.

Communicate information with operator’s and supervisors

- The Supervisor continuously checks the quality of the fibres and yarn. The Lab Technician helps the Quality Supervisor by conducting tests on samples, but it is the Supervisor who is ultimately responsible.

5.2. Dispatch and movement

5.2.1. Receipts records and dispatch

Receipt is the process of checking and accepting, from all sources (vendors, production units, repair units etc.), all materials and parts which are used in the organization. These include supplies for manufacturing or operating processes, plant maintenance, offices and capital installations.

Dispatch A customer places an order with the Sales department who will issue an invoice for the sales transaction. This invoice will either be sent to dispatch or directly to stores.

If the invoice is sent to dispatch, dispatch will complete a requisition which is sent to stores. As soon as stores receive the requisition, the stock for the delivery is issued and sent to dispatch together with a copy of the requisition. If the invoice is sent to stores directly, stores will complete a stock issue note based on the invoice and send the goods with the stock issue note and the invoice to dispatch.

5.3. Documentation

Interpreting documentation of each activities in industry enhance the smooth the communication. Some document related in work are as follows;

- A driver's trip sheet
- Invoices or delivery notes for the different loads that have to be delivered at the various customers
- Credit notes for goods that were returned
- If your customer pays cash upon delivery your driver will have to issue a receipt to the customer after checking the accuracy of the invoice.
- If your customer pays by account they have to acknowledge that they have received the goods. This is why the receiving clerk at the customer's premises has to sign the invoice or delivery note and also note the date that the goods were received.
- If an invoice does not correspond with the goods delivered in quantity, description or price, you have to advise stores and administration.
- Paperwork should be completed the same day and handed to the different department's invoices to admin, etc.
- The supervisor has to report regularly about the use of vehicles, the cost of vehicles, the number of deliveries, the mass of the deliveries, if the deliveries were made on time, etc.

- Finance has to know which goods were delivered and returned so that their statements to customers are correct.
- Incidents and accidents have to be reported immediately so that further steps such as damage control can take place.

Self-Check-5.1	Written Test

Directions: Answer all the questions listed below.

Part I. Short Answer: Give short answer for the following questions.

1. Define the Term ***receipt***.
2. What are related documents related in industry work?
3. Write the source of receipt.
4. What are the responsibility of supervisor in quality controlling process?

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OSHA Ergonomics e Tool: Ergonomic Principles Index – Lifting

OSHA Ergonomics e Tool: Materials Handling: Heavy Lifting

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