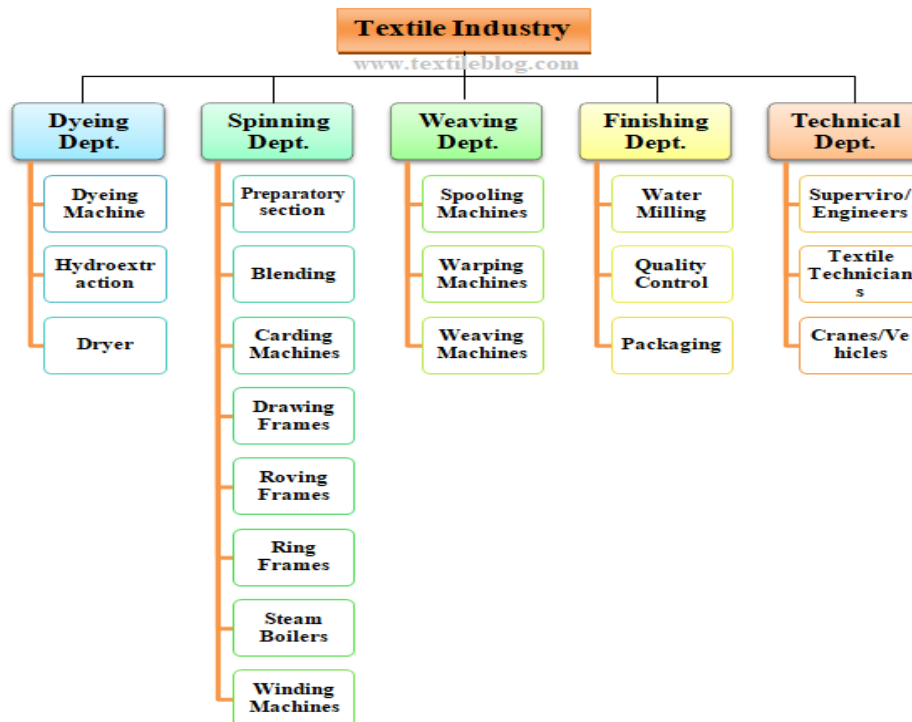


# TEXTILE PROCESSING TECHNOLOGY

## LEVEL – I

Based on February, 2022, Curriculum Version 1



**Module Title: Identifying Production process and organizational structure in textile processing unit**

**Module code: IND TPT1 M01 0222**

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## ACRONYM

OHS	Occupational health safety
CMS	Chemical management system
SOP	standard operating procedure
TTLM	teaching training learning material
MD	Managing Director
CEO	Chief executive officer
COO	Chief operating officer

## INTRODUCTION TO THE MODULE

In textile processing technology filed; identification of the organizational structure, production processes and supply chains help to know hierarchy and organization structure of textile industry; to describe workplace processes; learn skills for productive work and manage the work for textile processing filed

This module is designed to meet the industry requirement under textile processing technology Occupational standard, particularly for the unit of competency: **Identify the organizational structure within textile processing unit**

**This module covers the units:**

- Organizational structure of textile processing unit
- Relevant legislation and guidelines
- Production processes and supply chains
- Workplace processes
- Skills for productive work
- Manage own work

### **Learning Objective of the Module**

- Identify the organizational structure within textile processing unit
- Identify relevant legislation and guidelines
- Identify production processes and supply chains
- Describe workplace processes
- Learn skills for productive work
- Manage own work

### **Module Instruction**

For effective use this modules trainee is 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: ORGANIZATIONAL STRUCTURE OF TEXTILE PROCESSING UNIT

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

- Relevant positions within the textile industry.
- Representatives and personnel roles
- Industry terminology and acronyms

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:

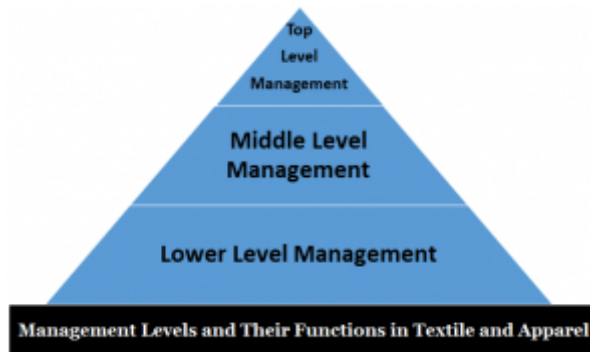
- Identify relevant positions within the textile industry.
- Identify Industry representatives and personnel roles
- Understand industry terminology and acronyms

### 1.1. Relevant position within the textile industry

#### **Management Levels and Their Functions in the Textile industry**

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- ✓ Top-level management in Apparel Industry
- ✓ Middle-level management in Apparel Industry
- ✓ Lower level management in Apparel Industry



*Fig 1.1. Management level and positions in the Textile industry*

### **Top Level Management in the Textile and Apparel Industry**

Top-level management has the Supreme authority and most of owning a share in a garment's factory. Their designation titled as MD (Managing Director), Director, Chairman, CEO (Chief executive officer), COO (Chief operating officer). They are mainly responsible for setting company policy, objective, ethics, and employee code of conduct of employees as their job role.

### **Functions of Top Management in Garments Factory**

1. To establish company policies, define goal and objectives
2. Set up company structure and form a company's core ethics
3. Leading Middle-level management
4. Appointing mid-level management
5. Taking strategic decisions and giving direction in a critical situation
6. Take the decision about Staff increment, employee promotion
7. Follow up factory profits loss and giving decision any types of financial matters
8. Keeping good relation with the buyer (Customer)
9. Follow up factory productivity and quality performance

### **Middle-Level Management in the Textile and Apparel Industry**

Middle-level management is called executory level subordinate of senior management but above of lower-level management. Generally, in the Textile and Apparel industry, their job



titles are Production manager (PM), Executive officer, Officer, Manager, etc. Company performance depends on Middle-level management.

### **Functions of Middle Management in Garments Factory**

1. Lead low-level management /operational staff directly.
2. Manage both top and lower-level management
3. Appoint low-level management employees
4. Set the production target and taking responsibility for production
5. Implement company goals, strategy, and policies
6. Implement all types of customer requirement
7. Responsible for company profit, losses, and performance to the buyer
8. Working for top-level and customer satisfaction
9. Contact with all level of management

### **Lower Level Management in the Textile and Apparel Industry**

Lower level management is in the supervisory level, supervise workers directly. They also are known as the operational staff who report directly to the mid-level management. In the textile and apparel industry their job title as Supervisor, controller, and in-charge. Low-level management directly connected with work and ultimately responsible for company performance

### **Functions of Lower Level Management in Textile and Apparels**

1. Supervise all Worker directly
2. Fulfill the production target
3. Follow buyer
4. Report Middle-level management
5. Solve any problem of worker

### **Textiles industry**

the textile industry is primarily concerned with the design and production of yarn, cloth, clothing, and their distribution. So, in the textile business generally needs more investment compared to the garment sector and it is an extremely automated area. It comprises yarn manufacturing, fabric manufacturing and dyeing and finishing, and these three functions could be carried out in integrated plants. On the other hand, the textile sector suffers from the higher lead time as well as high investment cost, which results in relatively large minimum orders.

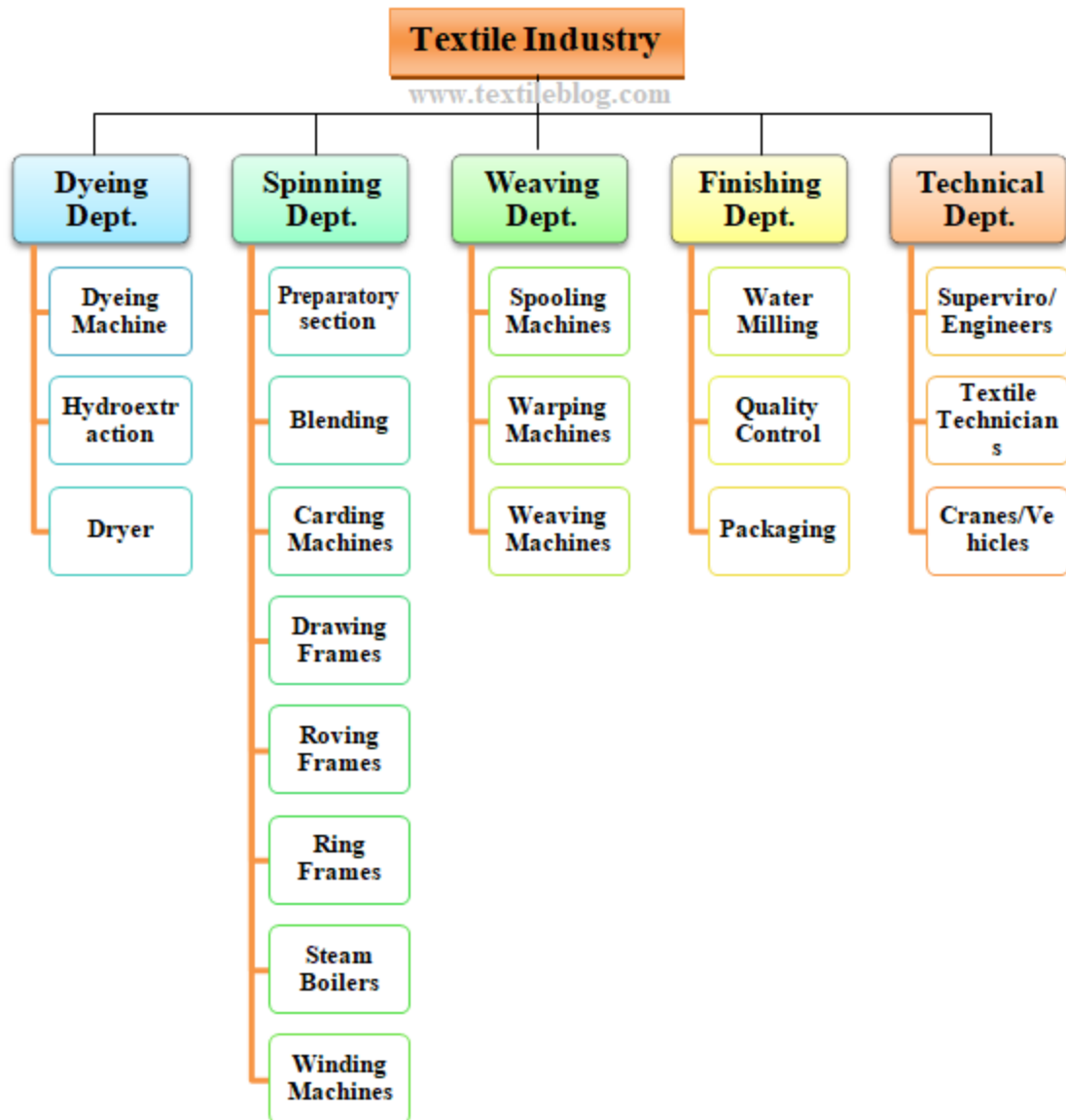


Fig 1.2: Organizational structure of textile industry

### 1.2 Representatives and personnel roles

A textile or fashion sales representative is employed by a manufacturer or wholesaler to sell clothes and accessories to wholesalers or retailers. This position requires wide-ranging skills and knowledge. While the job duties are similar to those of other sales representatives, you need to have a good understanding of fashion and textiles.

### Qualifications

The degree of education and the amount of experience required for this position depend upon the employer. A college degree or other educational accomplishment is not specified in many job descriptions for textile sales representatives. However, some employers require a

bachelor's degree in fashion merchandising or marketing. You definitely need some training in sales, as well as textile.

### **Skills**

Customer service, good communication, marketing expertise and leadership ability are among the skills required for this position. You also have to be a good listener. Effective communication is vital, as you will be coordinating with supervisors, co-workers, customers, delivery agents and others. In addition to face-to-face conversations, you will use the telephone, email and other methods of communication. You must be able to solve problems, find solutions to customers' needs and be detail and results oriented. You have to be able to work independently and know how to use the necessary information technology.

### **Personal Qualities**

To be a good textile sales representative, you should be a textile aficionado and have a thorough knowledge of your employer's products. The position requires an extroverted, confident personality who likes people and enjoys working with them. You need to be a natural at developing professional relationships. Other qualities mentioned in job descriptions include being observant and persuasive.

### **Primary Responsibilities**

Your job as a textile sales representative is to get retail or wholesale buyers to purchase your company's textiles and accessories. This involves contacting and meeting with potential buyers, providing hospitality for them and organizing events such as fashion shows. A significant amount of travel, including international trips, is required. The job entails identifying and targeting prospective customers and answering their questions about products, prices, credit terms and other matters. You'll recommend products to customers based on their needs and interests, demonstrate and explain products, and provide samples and catalogs. You may negotiate contracts, credit terms and warranties, and provide support to customers after the sale. You'll be called on to negotiate contracts, quote prices, arrange deliveries, monitor the textile market and keep up with the latest products.

### **Secondary Tasks**

Other duties include checking supplies, placing orders, creating product displays and working with retailers to improve product placement. Administrative tasks include preparing sales budgets, keeping records and filing expense account forms. You'll be called on to research and identify potential customers, compare the company's products with those of other firms and draft written proposals for customers. Expect to coordinate sales with marketing,

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management, accounting, logistics, technical services and other company departments; plan sales strategies; write reports to management; and attend trade shows and conventions

### **Role of HR (HRM) in Textile**

Every organization or industry is not only made by brick, cement or wood but it builds by 4 m's.

- a) Money
- b) Material
- c) Machines And
- d) Men

The man is ultimate resources of the organization because they think; speak, so that utilization of this resource is very critical. Every success of origination is depending on efficient and effective man power. HR starts when a man enters in the organization and its end, when he leaves the organization. HR deals with the human dimension.

Success or failure of an organization depends on the effective coordination of the resources such as money, material, machinery and men. Among these, the role and operation of men is the most complex. All the activities of an organization are initiated and completed by the persons who make up the organization. Therefore, people are the most significant resources of any organization. HRM is known by different names Personal management, personal administration, man power management.

### **The role personnel in textile industry**

#### **A) General manager**

The managers are strict in controlling the working time and efficiency of workers

#### **B) Production Manager/Shift In charge**

- Ability to oversee plant operations
- Problem solving skills, good communication skills to manage shop floor workers who are mostly minimally educated
- Technical competence Very strong understanding of all aspects of the spinning, weaving and chemical process.
- Technical knowledge is a must as spinning; weaving and chemical sector is technology intensive in nature.

#### **C) Supervisor**

- In-depth knowledge of production process.

- Knowledge about the various spinning, weaving, knitting and chemical processing machines used across the shop floor.

#### **D) Operator**

- Operating knowledge of the spinning, weaving and chemical processing machines.
- Ability to ensure that machine stoppage time is minimal
- Should be able to read gauges, dials, or other indicators to make sure a machine is working properly.

#### **E) Quality Control Supervisor/Manager**

- Understand the quality requirements of the yarn in terms of “count”, breakage during weaving etc.
- Understanding of the quality parameters across the various stages of assembly line.
- Knowledge of the cause of various defects. For example, the Supervisory should know that a particular defect (like black dots) in the yarn is due to improper quality of cotton or particular manufacturing process.

#### **F) Quality Control executive**

- Understanding of the quality parameters.
- Ensure that the quality parameters are adhered to by diligently checking the product. For e.g. Yarn marked as count 40 should not be 38/39 which will significantly affect the fabric manufacturers.

#### **G) Sales Manager**

- Detailed product knowledge in terms of type of fiber and other technical parameters.
- Good negotiation skills are a must as the yarn market is very cost sensitive.
- Minor quality issues tend to result in high discounts.
- Good communication skills to interact with the team as well as with the important clients.
- Knowledge of English is important in case of international clients.

#### **H) Sales Executives**

- Awareness of competitor actions and provide feedback to the management.
- Understanding of customer requirements in terms of quality of yarn.

- Good communication skills to interact with the team as well as with the important clients

### 1.3 Industry terminology and acronyms

Our chemical glossary contains detailed definitions for key chemical manufacturing industry terms and covers some of the more common enquiries we receive

If you're in the decorating trade or need to understand the labels on decorative fabrics, you'll find this is another way manufacturer use abbreviations. These use abbreviations can offer important information about the durability of various textiles in the form of "rubs."

The multitude of technical terms in the chemical industry can get confusing. No matter how long you've known the industry, even experts can trip up on the key terms they use regularly.

#### Self-check-1

**Instruction:** select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

**Test I:** Choose the best answer (2 mark each)

1. Which one of the following true about organization structure

- A. level of position
- B. task of personnel's
- C. centers of decisions in any organization
- D. all

2. Which one of the following top level of management

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- A. supervisor
  - B. operator
  - C. general manager
  - D. production manager
3. The role of production managers
- A. controlling spinning process
  - B. controlling weaving process
  - C. controlling chemical process

**Test II: short Answer writing**

**Instruction:** write short answer for the given question. You are provided 3 minutes for each question and each point has 7Points.

1. Define Organizational Structure in different ways?
2. Explain the role of human resource in textile organization?
3. Who is the highest level of position in hierarchy of organization?
4. Describe industrial associations? (2 marks)
5. Describe union? (2 marks)

## UNIT TWO: LEGISLATION AND GUIDELINES

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

- legislation and guideline
- Rights, responsibilities and legal obligations
- Concepts of product quality
- Instructions and procedures in a quality system
- Production employability skills

This guide 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:

- Understand Relevant legislation and guideline
- Identify rights, responsibilities and legal obligations
- Identify concepts of product quality
- Identify instructions and procedures in a quality system
- Identify production employability skills



## 2.1 Relevant legislation and guide line

### **Anti-discrimination**

It refers to the law on people's right to treated equally some countries mandate that in employment, in consumer transaction and in political participation people may be deal with on an equally basis regardless of sex, race, ethnicity, nationality, sexuality and sometimes religion and political views.

### **Equal employment opportunities**

It is about ensuring that all employees have equal access to the opportunities that are available at work by:

- making sure that workplace is free from all form of unlawful discrimination and harassment
- providing program to assist member of equal employee opportunity groups to overcome past or present disadvantage

### **Work place diversity**

It is a people issue, focused on the differences and similarities that people bring to an organization.

### **Freedom of information**

Comprises laws that guarantee access to held by state, they establish a “right to know “legal process by which request may be made for government held information to be received freely or at minimal cost.

### **Environmental guide lines and industrial relations awards**

Every product impacts the natural environment Decisions made during the design phase determine the level and type of impact a product will have.

## 2.2 Rights, responsibilities and legal obligations

The textile industry uses many chemicals in the production and dyeing processes and, depending on the range of activities you carry out, your business may fall within the scope of the reach regulations. You may need to register chemicals that you use in garment or textile production.

### **Factories Act**

This Act and subsequent regulations cover such things as working conditions and the safety of machinery and equipment

### **Textile labelling**

The Textile Products (Labelling and Fiber Composition) Regulations specify the information about the fiber content of garments that must be provided. This can either be on a label on the garment, or on the garment's packaging. If you supply to a wholesaler, the invoice accompanying the order can contain the information.

You don't have to include garment care information - such as washing instructions - on your clothing ranges

### **Consumer protection**

The Consumer Protection Act covers the safety of products and manufacturers must make sure that the goods they produce are not defective. Any components they buy in from other suppliers should be identifiable so that if a finished product is defective, leading to a claim, any faulty component can be traced. The General Product Safety Regulations apply to many products, including clothing.

### **Environmental protection**

Environmental legislation regulates the disposal of industrial waste products.

You may also be affected by regulations referred to as REACH - this stands for the Registration, Evaluation, Authorization and Restriction of Chemicals. It aims to protect human health and the environment by controlling chemical substances. REACH covers most chemicals that are manufactured or imported into the EU in quantities of one tone or more in a year.

There are also regulations that are aimed at protecting the environment from pollution. If your manufacturing business carries out an activity that causes environmental damage you will have to prevent and remedy any damage.

### **Health & Safety, fire**

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You must comply with workplace health and safety and fire safety legislation. The Ministry of Housing, Communities & Local Government has produced several helpful guides for businesses, including a special fire safety risk assessment guide for factories and warehouses.

### **Insurance for a clothing manufacturer**

Contact an insurer or insurance broker and explain exactly how your business will operate - they will then explain what insurance cover you must have by law, and other cover you should consider. This might include:

- premises, premises contents
- machines and equipment
- raw materials, work-in-progress, finished garments
- goods in transit (being collected or delivered)
- business interruption
- employer's liability
- public liability
- product liability
- motor insurance (for delivery vehicles)

When comparing insurance quotes, uncover the differences between policies by using an insurance comparison form.

### **Corporate social responsibility in textile industry**

The concept of social responsibility is a fairly recent one in the business world. Awareness about the social responsibility of business organizations is rapidly on the rise and firms are also accepting this concept. The textile industry is no exception. Textile producing and trading firms are also realizing their responsibility towards the society and the environment.

Social responsibility is “an organization’s obligation to maximize its positive impact and minimize its negative impact on the society”. In other words, it is “the concept that businesses should be actively concerned with the welfare of the society at large”.

The concept of social responsibility is applicable to individuals and governments as well as organizations. The social responsibility of an organization is referred to as ‘corporate social responsibility’.

Social responsibility can be broadly divided into two parts: human responsibility and environmental responsibility.

**Human responsibility** refers to the responsibility of the organization towards the various parties associated with it, which are known as ‘stakeholders’ in business parlance. These

parties include employees, shareholders, the government, customers, investors, suppliers, competitors and the society at large.

**Environmental responsibility** refers to the organization's responsibility towards environment protection.

### **Social responsibility in the textile industry**

like the firms in other industries, textiles firms are also realizing their responsibility towards the various parties associated with them and the environment. However, the ways by which different organizations choose to fulfill their social responsibility might be different.

The ways in which a textile firm can fulfill its responsibility towards various parties are similar to those of firms in other industries, as is evident from the points mentioned below:

#### **Towards employees**

- By providing a competitive and challenging work environment to the employees.
- By having ethical recruitment, remuneration, promotion and other policies
- By providing opportunities to the employees to voice their opinion and complaints and have an effective policy for the solution of these complaints.
- Ensuring a safe working environment for the employees. Having fair policies for the solution of employee disputes.

#### **Towards shareholders:**

- By representing a fair picture of the company's financial position and profit/loss to the shareholders
- By paying them a fair rate of dividend

#### **Towards the government:**

- By providing the necessary information to the government as and when required
- By making payment of the due taxes and duties at the proper time
- By abiding by the laws and regulations of the area in which the firm operates.
- Contributing to the economy through exports.

#### **Towards investors:**

- By giving the investors a true and fair picture of the financial condition of the business.
- By giving them due returns on the investment made by them

#### **Towards suppliers**

- Making competitive payment to the suppliers for the products purchased from them.
- Maintaining a good relationship with the suppliers.

#### **Towards competitors:**

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- Indulging in ethical and healthy competition

**Towards society:**

- Undertaking community development and area development programmers.
- Undertaking charity work for the underprivileged sections of the society.
- By creating job opportunities.

**Towards environment:**

- Ensuring the purchase of environment-friendly supplies.
- Ensuring a pollution-free process of production
- having an efficient system for the disposal of waste
- Making the product and the process of production as environment-friendly as possible.
- Adopting eco-friendly packaging.

### 2.3 concept of product quality

A quality textile product is one that been well designed and well produced to meet the purpose for which it was intended.

**Product quality depend on several factors**

- The design features built in to the product to make it fit for its intended purpose.
- The quality of material used
- The quality of finishing techniques
- The quality of assembly process
- The quality control checks under taken at all stage a in production process

**Concept of product quality includes:**

- consistency in quality
- producing to specification, including time requirements
- meeting customer requirements

**Basic Concepts of Quality and Quality Control in Textile**

In textile industry, quality is the most important thing. So maintaining quality control in textile is a supreme priority task for textile engineers. To me it seems like my own heart and it's really true that it's like same as me to everyone related to textile industry. Because we all know the slogan that is “Quality first”

Suppose you go to a tailor shop and order a custom white shirt for your upcoming job viva. You give all the requirements to the tailor master for your desired shirt but in the end when you get the shirt you feel that it is not in the perfect shape you had mentioned in your requirements. That means tailor cannot meet the level of your requirements. From this

coincident we can understand that how important the fact of quality is. Because in industry they deal with the bulk amount of production so, from this we can easily define the term quality.

### **Quality:**

Quality may be defined as the level in which manufacturers can finely meet the requirements of a buyer. Or, we may define it as the Features of a product which can sharply meet the buyer's demands.

### **Important Aspects of Quality:**

There are some aspects of quality. Most importantly 9 aspects of quality is given bellow:

- 1. Performance:** This term actually refers to the accurate features of a product or we can say that the desired satisfaction point of a product to the customer.
- 2. Reliability:** It may be defined as the mentioned features or functions of a product is fulfill it's committed features in during time period.
- 3. Durability:** The durability of a product is may be defined as the assurance of a product that how long the product will be usable for the customers.
- 4. After sales service:** It means extra pleasure service after sales. Nowadays this is one of the best ways to increase selling with the proper customer pleasure.
- 5. Innovative Features:** Customer's choice has no boundary they need more and more new design or they give more and more new requirements. Innovative features are aspects that can try to fulfill the customer satisfaction.
- 6. Conformance:** Conformance refers to the accurate specifications. It defines that how finely a product or service meet the design and customers.
- 7. Aesthetics:** Many customer are very much concern about the amazing fashion or style. Aesthetics is one of the important aspects of quality.
- 8. Perceived quality:** To maintain the perceived quality by the requirements is one of the most important aspects of quality.
- 9. Maintainability:** This is also same as after sales service. Maintenance or servicing agreement with customers is amazingly increasing the quality of a product.

### **Fundamental Factors Affecting Quality:**

- 1. Customers:** Customers are the destination of a product. Mainly they are the last user of a product. Because of that the entire quality unit should have to be focus on customer factor.
- 2. Manufactures:** In the industry the types of raw materials used and packing materials used in the production by the specifications is a concern. Nowadays in the modern quality

managements point out that management board and materials both are cordially responsible for quality.

**3. Employee:** In time during employee plays a great role to delivering a good quality product. Very specifically employees think as the internal customers of their product. So that they can be satisfied with the end product as a point of view of customers.

**4. Materials:** To get a good quality product the role of supplied raw material is a big factor. Without good quality raw materials there is no way to meet the good quality product.

### **Quality Control:**

Quality is the first priority of a iconic business or brand. To assure the quality we have to follow the quality control procedure.

Quality control may be defined as the process or system by which we can check and verify the perfection of product characteristics by given requirements.

In garment industry quality control process keeps up from the initial stage of collecting raw materials to the final finished garments.

If there is any fraud in any step of a whole process then it would not be easy to get a good quality product.

### **Objectives of Quality Control:**

1. To assure the buyers requirements
2. Make a good product impression
3. Create a brand value
4. Assure the customer's satisfaction

### **Types of Quality Control:**

Mainly two types of quality control system followed in our industries. These are:

**1. Process control:** When a product is on process line the quality control system applied step by step in during process time to meet the excellence of end product this is known as process control.

**2. Product control:** This system is applied after production process. This system is used for decreasing faulty product within different lots of manufactured good.

You may also like: 4 Point System for Fabric Inspection with Example

### **Here we can classify process control in two types. These are:**

**1. On-Line Quality control:** When the process of a production is going on this type of quality control system is performed. In during this quality control system production doesn't need to stop. It automatically performs during the process time and detects the fault and takes urgent steps to correction. We can say it is an automatically quality control system.

**2. Off line Quality control:** These types of control are done by stopping the production process and in a laboratory. Detected faults are correct by the step of test results.

Quality is the identity of a last product. It is the most important thing of matter. In Bangladesh different garments industry, they follow different types of management and quality control system. Whatever it is, everything is for a good quality end product. Without good quality industry will never create brand value or product impression or we can say industry will never shine or survive in this sector easily.

### **Textile Testing and Quality Control**

Textile Testing & Quality Control (TTQC) is very important work or process in each department of export-oriented industry. Buyers want quality but not quantity. For example, if qualified fiber is inputted then output will be good yarn.

#### **What is textile testing?**

Textile testing is checking the quality and suitability of raw material and selection of material. It is an important part for textile production, distribution, and consumption. Though it is an expensive business but essential too. There are some reasons for textile testing; such as, checking raw materials, monitoring production, assessing the Final Product, investigation of faulty material, product development and research.



*Fig 2.1 Textile testing*

#### **What is quality control?**

Quality controls are a process by which entities review the quality of all products in an industry. It refers to ways of ensuring the quality of a service or product. Actually, quality control is a system for verifying and maintaining a desired level of quality in an existing product or service by careful planning, use of proper equipment, continued inspection, and corrective action as required.



**Testing:** Testing means checking, examine and verification of some items. On the other way we can define testing as; it is the process or procedure to determine the quality of a product.

**Object of testing:**

- Research
- Selection of raw material
- Process control
- Process development
- Product testing
- Specification test
- Testing is governed by 5M, which are: Man, Machine, Material, Method and Measurement.

**Quality:** The term quality refers the excellence of a product. When we say the quality of a product is good. We mean that the product is good for the purpose for which it has been made.

**Control:** To check or verify and hence to regulate.

**Quality Control:** Quality control is the synthetic and regular control of the variable which affect the quality of a product. It is the checking, verification and regulation of the degree of excellence of an attribute or property of something.

The operational techniques and activities that sustain the quality of a product or service in order to satisfy given requirements. It consists of quality planning, data collection, data analysis and implementation and is applicable to all phases of product life cycle; design, manufacturing, delivery and installation, operation and maintenance.

- Objects of Quality Control: To produce required quality product.
- To fulfill the customer’s demand.
- To reduce the production cost.
- To reduce wastage.
- To earn maximum profit at minimum cost.

**Product Development and Research**

In the textile industry technology is changing all the time, bringing modified materials or different methods of production. Before any modified product reaches the market place it is necessary to test the material to check that the properties have been improved or have not been degraded by faster production methods. In this way an improved product or a lower-cost product with the same properties can be provided for the customer. A large organization will

often have a separate department to carry out research and development; otherwise it is part of the normal duties of the testing department.

### **Color Fastness Test to Light**

The purpose of Color fastness to light test is to determine how much the color will fade when exposed to a known light source. It is an off line quality assurance system. Generally, man wears the fabric and goes outside of the home for doing their job. In day; sun light falls on the fabric surface. So, it needs to know how much protection ability have a fabric to sun light. It is determined by an experiment called color fastness to light. To measure the color fastness a blue scale is used. After completing the test, sample is compared with the blue scale.



*Fig 2.2: Light fastness tester*

### **Principle of Color Fastness to Light:**

This test measures the resistance to fading of dyed textile when exposed to day light. The test sample is exposed to light for a certain time which is about 24 hours to 72 hours or by customer/buyer demand and compare the change with original unexposed sample the changes are assessed by Blue Scales.

### **Color Fastness to Light with the Micro sol light Fastness Tester:**

The testing is done step by step. Following step is maintained during measure the color fatness to light.

1. Cut the four pieces of test specimens according to the length & width wise and attached with the specimen holder.
2. Then the holder set in to the Micro sol light fastness tester.
3. Then the experiment continued at 72 hours according to the buyer's requirement.
4. After 72 hours later the specimen taken from the light fastness tester

- Then the test specimen compares with the Blue scale or computer color matching system (CCMS)

### Introduction of Pressing Fastness Test

**Color Fastness to Pressing:** Pressing fastness test of dyed and printed textile products is performed to determine of resistance of textiles to ironing and to processing on cylinders. Different tests are performed according to when the textile is dry, when it is wet, and when it is damp.

### Introduction of Perspiration Test

The color fastness to perspiration (acid and alkaline) shall be at least level 3-4 (color change and staining). This criterion does not apply to white products, to products that are neither dyed nor printed, to furniture fabrics, curtains or similar textiles intended for interior decoration. A level of 3 is nevertheless allowed when fabrics are both light colored (standard depth  $< 1/12$ ) and made of silk or of blends with more than 20% silk. This kind of test is specially applied for the sportswear and heavy dresses which is used specially. Normal cloths is also tested by perspiration test.

### Color Fastness to Perspiration

The garments a\which come into contact with the body where perspiration is heavy may suffer serious local discoloration. This test is intended to determine the resistance of color of dyed textile to the action of acidic and alkaline perspiration. Before knowing about the Color Fastness to perspiration you must have to know about Color Fastness to Wash and Color Fastness to Rubbing.



*Fig 2.3 per spirometer*

**There are two test methods for rubbing fastness.**

1. ISO-105-X12
2. AATCC-08

In ISO-105-X12 the wet pickup of the rubbing cloth is 100%. While in AATCC-08 the wet Pickup of the rubbing cloth is 65%. We check rubbing by Dry and Wet methods. In wet rubbing we wet the rubbing cloth according to test method and give rating by comparing the Staining with the gray scale.

Similarly, for dry rubbing we check the rubbing with dry rubbing cloth and compare the staining with gray scale for ratings. Color Fastness to rubbing is a main test which is always required for every colored fabric either it is Printed or dyed.

If the color fastness to rubbing is good then it's other properties like washing fastness and durability etc. improves automatically because the rubbing is a method to check the fixation of the color on the fabric. So, if the fixation is good its washing properties will be good.

### **Rubbing Fastness depends on**

1. Nature of the Color
2. Depth of the Shade
3. Construction of the Fabric Nature of the color each color either it is pigment, Reactive, Disperse or direct has its own fastness properties to rubbing. There are some colors like black, Red, Burgundy, Navy blue which have poor Color fastness properties because of their chemical structure.
4. Like Black color is a carbon base color and the particle size of carbon is large than the other colors that's why its rubbing properties are poor. Similarly, red and blue are in the same case. So, to improve the color fastness we add more binder to improve the fastness properties of these colors. It doesn't mean that we cannot achieve the best results with these colors. The required results can achieve but production cost will be increase. On the other hand, the construction of the fabric also effects the fastness properties.

### **Rubbing fastness test**

If the rubbing fastness on 100.80/40.40 is 3 on the gray scale it will be 2-3 on 52.52/22.22 with the same printing parameters. So always keep in mind these effects during finalize the required parameters with your customer.

### **Always Check**

1. Quality construction
2. Color
3. Depth of the Color

#### 4. End Use of the product

#### Results which we can achieve in Normal Conditions are:

1. Dark Shade
2. Medium shades
3. Light Shades

Dry	Wet
3-4	2 -2.5
4	3
4-5	3.5-4

#### Fastness Tests

##### ➤ Color Fastness Test

The property of a dye to retain its color when the dyed (or printed) textile material is exposed to conditions or agents such as light, perspiration, atmospheric gases, or washing that can remove or destroy the color. A dye may be reasonably fast to one agent and only moderately fast to another. Degree of fastness of color is tested by standard procedures. Textile materials often must meet certain fastness specifications for a particular use.



**Fig 2.4. Color Fastness Test**

It is always useful and interesting to test the dye which is to be used on a sample of the yarn or fabric to be dyed. The outcome will depend on the fabric, the mordant that has been used

and dye that has have been chosen. Testing is best carried out on a series of Groundnuts marked (for identification) samples, which have been mordant with a number of different mordents. Tests can be carried out for light, water and washing fastness using simple standard test methods.

### **Washing Fastness Test**

Washing fastness is the ability of fabrics to retain the dyes used to color them. Some fabrics hold dye within their fibers extremely well – like denim – while others do not (mostly synthetic or artificial non-natural fabrics) and tend to “bleed” when they are washed. The denim would therefore be more “color fast” than the other fabric.

The resistance of a material to change in any of its color characteristics, when subjected to washing is called color fastness to washing.

In the test, change in color of the textile and also staining of color on the adjacent fabric are assessed. A 10 x 4 cm swatch of the colored fabric is taken and is sandwiched between two adjacent fabrics and stitched, the sample and the adjacent fabric are washed together. Five different types of washing are specified as different washing methods.



*Fig 2.5. Washing fastness testing by Gyro wash*

The solution for washing should be prepared to the required temperature of washing. The liquor material ratio is 50:1. After soaping treatment, remove the specimen, rinse twice in cold water and then in running cold water under a tap. Squeeze it and air dry at a temperature not exceeding 60°C. The change in color and staining is evaluated with the help of grey scales.

Table 2.1. Washing fastness results

Sr.No	Method	Washing severity	Soap+So da grams/liter	Time in minutes	Temperature	Steel balls
1	IS:687:79	Very mild like hand wash	5	30	40+/- 2	Nil
2	IS:3361:79	5 times more severe than method 1	5	45	50+/- 2	Nil
3	IS:764:79	Mild washing	5 + 2	30	60+/-2	Nil
4	IS:765:79	Severe washing	5 + 2	30	95+/-2	10
5	IS:3417:79	Severe washing	5 + 2	4 hrs	95+/-2	10

## 2.4 Instructional and procedures in a quality system

There are two areas to consider when evaluating a textile product for quality

1. How well it has been designed for its purpose
2. How well it has been made to meet that purpose.

A quality management system (QMS) is defined as a formalized system that documents processes, procedures, and responsibilities for achieving quality policies and objectives. A QMS helps coordinate and direct an organization's activities to meet customer and regulatory requirements and improve its effectiveness and efficiency on a continuous basis.

ISO 9001:2015, the international standard specifying requirements for quality management systems, is the most prominent approach to quality management systems. While some use the term "QMS" to describe the ISO 9001 standard or the group of documents detailing the QMS, it actually refers to the entirety of the system. The documents only serve to describe the system.

- Benefits of QMS
- ISO 9001:2015 and other QMS standards
- Elements and requirements of a QMS
- Establishing and implementing a QMS
- Industrial influence on quality and standardization
- QMS resources

### Benefits of quality management systems

Implementing a quality management system affects every aspect of an organization's performance. Benefits of a documented quality management system include:

- Meeting the customer’s requirements, which helps to instill confidence in the organization, in turn leading to more customers, more sales, and more repeat business
- Meeting the organization's requirements, which ensures compliance with regulations and provision of products and services in the most cost- and resource-efficient manner, creating room for expansion, growth, and profit

These benefits offer additional advantages, including:

- Defining, improving, and controlling processes
- Reducing waste
- Preventing mistakes
- Lowering costs
- Facilitating and identifying training opportunities
- Engaging staff
- Setting organization-wide direction
- Communicating a readiness to produce consistent results

### **ISO 9001:2015 and other QMS standards**

ISO 9001:2015 is the most recognized and implemented quality management system standard in the world. ISO 9001:2015 specifies the requirements for a QMS that organizations can use to develop their own programs.

Other standards related to quality management systems include the rest of the ISO 9000 series (including ISO 9000 and ISO 9004), the ISO 14000 series (environmental management systems), ISO 13485 (quality management systems for medical devices), ISO 19011 (auditing management systems), and IATF 16949 (quality management systems for automotive-related products).

### **Elements and requirements of a QMS**

Each element of a quality management system helps achieve the overall goals of meeting the customers’ and organization’s requirements. Quality management systems should address an organization’s unique needs; however, the elements all systems have in common include:

- The organization’s quality policy and quality objectives
- Quality manual
- Procedures, instructions, and records
- Data management
- Internal processes
- Customer satisfaction from product quality
- Improvement opportunities



- Quality analysis



*Fig 2.6 Quality Management System (QMS) Principles*

### **Establishing and implementing a QMS**

Before establishing a quality management system, your organization must identify and manage various connected, multi-functional processes to help ensure customer satisfaction. The QMS design should be influenced by the organization’s varying objectives, needs, and products and services provided. This structure is based largely on the plan-do-check-act (PDCA) cycle and allows for continuous improvement to both the product and the QMS. The basic steps to implementing a quality management system are as follows:

#### **✓ Design and Build**

The design and build portions serve to develop the structure of a QMS, its processes, and plans for implementation. Senior management should oversee this portion to ensure the needs of the organization and the needs of its customers are a driving force behind the systems development.

#### **✓ Deploy**

Deployment is best served in a granular fashion by breaking each process down into subprocesses and educating staff on documentation, education, training tools, and metrics. Company intranets are increasingly being used to assist in the deployment of quality management systems.

## ✓ Control and Measure

Control and measurement are two areas of establishing a QMS that are largely accomplished through routine, systematic audits of the quality management system. The specifics vary greatly from organization to organization depending on size, potential risk, and environmental impact.

### 2.5 Production employability skill

Employability skills are transferrable skills that are useful in nearly every job. They involve the development of an expertise, knowledge base or mindset that makes you more attractive to employers.

Employability skills are also often referred to as employment skills, soft skills, work-readiness skills or foundational skills. They often improve your performance, minimize errors and promote collaboration with your coworkers, enabling you to perform your role more effectively.

Employability skills may not be listed in a job description, but they are important skills that can make you more attractive to prospective employers. The main benefit of having these traits is that it can help you stand out among other job candidates who are vying for the same position.

While other candidates may have the same qualifications and experience, you may have a better chance of getting hired if you have employability skills that are particularly useful for the role.

Certain employability skills are more sought after in specific industries. You can prepare yourself for an interview or write your resume for a particular position by researching which employment skills are essential in your industry.

### Examples of employability skills

Employers have high regard for employability skills because they are much harder to teach than job-specific skills. Some employable qualities come naturally, while others can be acquired through education, work or daily practice.

You may already have some of the key employment skills, but you can work to improve those skills and develop new ones. Here are 10 common employability skills that employers look for:

### 1. Communication

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Communication is one of the most important employability skills because it is an essential part of almost any job. The communication process involves five elements: the sender, receiver, message, medium and feedback. When these elements work together, you can deliver and understand messages clearly and efficiently, eliminating unnecessary misunderstandings and errors. Excellent communication skills make you more employable because they can enhance a company’s productivity and efficiency and help prevent the waste of valuable time and resources.

Being an effective communicator involves conveying your thoughts and ideas clearly to achieve certain outcomes, as well as listening to your coworkers’ instructions, ideas and intentions. Depending on the job you want, you may have to be competent in several different types of communication, such as verbal, nonverbal, written and visual. For instance, a customer-facing employee needs to have excellent verbal and nonverbal communication skills.

The best way to improve your communication skills is to communicate as frequently as possible. Some of the activities that can help you develop better communication skills include:

- Communicating on social media
- Joining a local club
- Practicing awareness of your facial expressions and other nonverbal cues

## 2. Teamwork

Good teamwork skills refer to the ability to work harmoniously with your colleagues to achieve a shared goal. Teamwork skills such as collaboration can increase your hiring chances because you may be able to help a company reach its goals more effectively.

These skills can also contribute to a more positive work environment. To become a great team player, you need to be comfortable working with people, take responsibility for your share of work and contribute to team goals.

There are many things you can do to boost your teamwork skills, including:

- Volunteering to help coworkers with projects
- Working with others in a local organization
- Joining a sports team

## 3. Reliability

Reliability makes you more employable because it promotes trust between you and your employer. You are a reliable employee if you can consistently complete your tasks on time,

deliver quality work and make minimal mistakes. You must also be able to respond to inquiries and emails promptly and only make promises you can keep.

You can become more reliable by:

- Consistently meeting or exceeding your expected levels of work performance
- Creating schedules for your daily tasks and maintaining them
- Acknowledging your mistakes and making a conscious effort to avoid them in the future

#### **4. Problem-solving**

Problem-solving involves identifying key issues and their implications, having a clear understanding of problems and determining the most effective solutions. For more complex problems, you need to know how to divide them into smaller parts that are easier to understand and more manageable.

Problem-solving skills can set you apart from other job candidates because they can help your potential employer maintain an efficient operational process and achieve objectives more effectively.

If you're a good problem-solver, you can play an important role in troubleshooting issues, which can enable your team to overcome obstacles and solve complex problems. Depending on the position you are applying for, you may need a certain set of sub-skills to solve problems effectively, including research, analysis and decision-making.

You can become a better problem-solver by:

- Undertaking research assignments and projects
- Participating in brainstorming sessions
- Regularly developing your skills by solving puzzles and playing games

#### **5. Organization and planning**

Being able to organize and plan effectively is important because it helps you and your employer save time, effort and money by improving workflow. It ensures that assignments and projects are completed on time and prevents confusion and errors that can be costly to the company.

To be a good organizer and planner, you should be able to identify tasks, prioritize them, create schedules for them and complete them on time. If you are in a leadership position, you need to develop systematic processes for achieving goals and delegating tasks appropriately.

You can develop organizational and planning skills by:

- Developing a timetable for your daily activities
- Organizing an event
- Writing down your tasks and activities in a planner

## 6. Initiative

Taking initiative means recognizing a problem and solving it, preparing for a potential crisis by taking preemptive action, taking advantage of opportunities and having a positive attitude. It shows that you can think for yourself and take the necessary actions without being instructed to do so. As a person with initiative, you have a strong drive to succeed and a desire to keep improving yourself through continuous learning, which makes you valuable to any organization.

Employers consider initiative one of the key employability skills and value employees who possess self-motivation to complete tasks without being asked. The flexibility and courage of such employees can push organizations to innovate and achieve a competitive edge.

You can improve your ability to take initiative by:

- Approaching companies and other organizations to inquire about job opportunities
- Proposing changes to the policies or activities of a group you belong to
- Setting up a local club or fundraiser

## 7. Self-management

Self-management refers to the ability to perform job duties satisfactorily with little or no supervision. For higher-level employees, it also means delegating tasks to ensure you complete them on time. Additionally, self-managed employees can motivate themselves to deliver solid work performance consistently.

If you have good self-management skills, you can help your supervisor or manager save time and effort simply because you need minimal guidance and assistance from them. Also, being a self-motivated person means you may be less likely to have productivity issues. These abilities can make you an appealing candidate to most employers.

You can develop self-management skills by:

- ✓ Asking for more responsibilities at work
- ✓ Creating schedules for certain activities and maintaining them
- ✓ Participating in volunteer work that allows you to work independently

## 8. Leadership

Employers look for good leaders because they can benefit organizations in many ways. As a leader, you play an important role in ensuring that your team shares the same vision as the company and works in unison with other teams and departments to achieve a common goal.

Additionally, you can develop strategies for achieving objectives, keep your team constantly motivated and monitor work performance to produce better results for the company.

Leadership skills are important at every level. If you are seeking a managerial position, you need to be a good leader to motivate your team members. You can also benefit from having some leadership ability in entry-level positions because it may help you stand out and climb the ranks faster.

You can show leadership by directing and motivating your coworkers, setting objectives and goals for your team, improving work practices and coaching your colleagues.

You can learn to become a better leader by:

- Attending a leadership course
- Starting a local group
- Reading about the habits of successful leaders, particularly those in your industry

## 9. Learning

Having strong learning skills means understanding new concepts and methods quickly, taking on new tasks, adapting to change and having the tendency to improve your knowledge and skills continually.

Employees who have good learning skills may help employers fill challenging roles more quickly and reduce the cost of staff training. Good learners are especially desirable to companies that are at the forefront of innovation because they can help transition to new methods and technologies more smoothly.

You can increase your ability to learn by:

- Taking a course to improve your learning skills, such as a speed-reading, memory-boosting or an accelerated-learning course
- Researching skills and activities related to your job, such as organizing, teamwork or presentation skills
- Teaching yourself a new skill or hobby

## 10. Technology

Companies search for candidates with technical skills to help them use the latest technology and stay ahead of their competitors. Depending on your job, the technology skills you need

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may vary greatly, from word processing and sending email to video editing and using programming languages.

If you can grasp technology-related concepts and learn how to use new technologies quickly, you may be more attractive to employers. Technology skills are acquired through learning and practice.

Some of the ways to develop and improve technology skills include:

- ✓ Enrolling in a technology course
- ✓ Trying out new apps and technology in your daily life
- ✓ Staying up-to-date with the latest technology in your industry

## Self-check-2

### Test-I Matching

**Instruction:** select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

A	B
-----1. Performance	A. Service agreement
-----2. Reliability	B. Important aspect of quality
-----3. Durability	C. Faison or style
-----4. Conformance	D. Accurate specification

- |                            |  |
|----------------------------|--|
| -----5. Aesthetics         | E. Customer satisfaction                 |
| -----6. perceived quality  | F. product meet the design               |
| -----7. After sale service | G. assurance of the product              |
| -----8. Maintainability    | H. function of product committed feature |

**Test II: short Answer writing**

**Instruction:** write short answer for the given question. You are provided 3 minutes for each question and each point has 5 Points.

1. What is textile testing
2. What is textile labeling?
3. What does on line quality control means
4. What does on line quality control means
5. What is the difference between product control and process control?
6. Write the definition of work place diversity

**Part III: Short answer writing**

**Direction:** Give short answer to the following questions. Time allotted for each item is 2 mniut and each question carry 4 point.

- |                   |                   |
|-------------------|-------------------|
| 1 Learning        | 5 Initiative      |
| 2 Leader ship     | 6 Self-management |
| 3 Technology      | 7 Reliability     |
| 4 Problem solving | 8 Team work       |



## UNIT THREE: PRODUCTION AND SUPPLY CHAINS

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

- Workplace Materials
- Workplace Production process
- Workplace Supply chains.

This guide 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:

- Identify workplace materials
- Identify workplace production processes.
- Identifying workplace supply chains.

### 3.1 Workplace materials

#### Raw materials used in Textile Industries

##### ✓ Dyes

The dye is a complex compound which is applied in the textile materials represent color and contains chromophore and auxochrome groups in its chemical structure. It is necessary to

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know which dyes have an affinity for the vegetable, animal, or man-made fibers to select the proper dye for a fiber.



*Fig 3.1. Dyestuffs*

Different types of dyes are used in the textile industries as raw materials are as follows –

- Basic dyes
- Acid dyes
- Mordant dyes
- Substantive direct dyes
- Developed dyes
- Azoic dyes
- Disperse dyes
- Vat dyes
- Reactive dyes
- Pigment dyes

### Chemicals and Auxiliaries

Dyeing chemicals and auxiliaries enables a processing operation in preparation, dyeing, printing or finishing to be carried out more effectively, or which is essential if a given effect is to be obtained.



*Fig 3.2. Chemicals and Auxiliaries*

Different types of chemicals and auxiliaries used in dyeing, printing and finishing are as follows

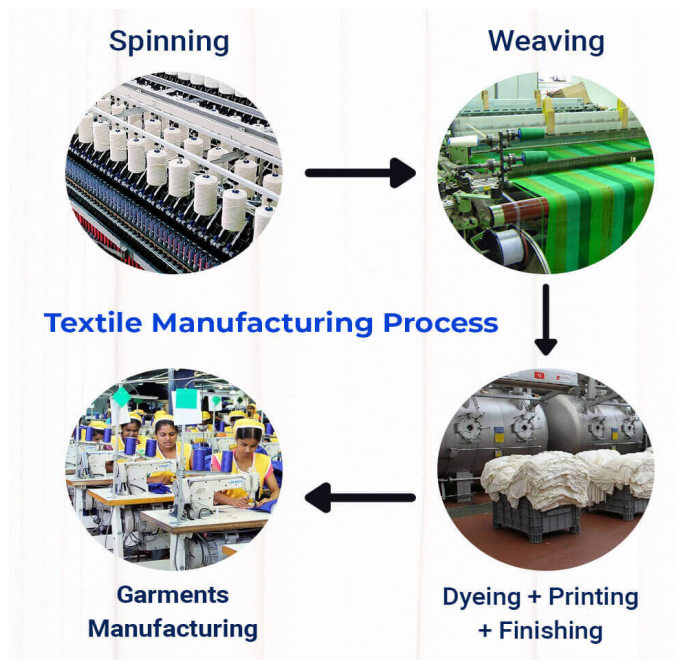
- Whitening agent
- Wetting agent
- Fixing agent
- Detergent
- Silicon
- Stiffening agent
- Water proofing agent
- De-foaming agent
- Enzymes
- Caustic soda
- Soda ash
- Acetic acid

### 3.2 Workplace Production process

#### Textile Manufacturing Process with Flow chart

Textile fibers have certainly provided an essential element in contemporary society and physical formation pointing out human comfort. Human is a companion of fashion. Textile manufacturing process is beginning towards the production of any garment or Textile Products. The aspirations for quality garment and apparel gave rise to development of textile fibers and textile production units. The textile companies meet the requirements of human in terms of attire and this attire is brought into the market after a specific procedure. Textile manufacturing is an extensive and

immense industry having a complex procedure. It undergoes range of stages as converting fiber into yarn, yarn into fabric and so on ending up with clothing as a concluding product.



*Fig 3.3. Textile Manufacturing Process*

### **Explanation of the 4 stages in textile manufacturing process**

Currently, textile production units include significant quality of textile process for manufacturing that adds value in fiber. The cloth production is not an output of few stages but it does undergo from various steps. The process describing the stages of manufacturing procedure is listed below:

STEP1: Spinning

STEP 2: Weaving

STEP 3: Wet processing

Spinning is a procedure of producing/converting fiber materials in yarns. On an initial stage it goes through the blow room where the size of cotton becomes smaller by the help of machinery followed by carding. After carding, the process is continued by drawing which includes attenuating in spinning mills. The silver produced by drawing is then processed for combining where consistent size of cloth is attained. It is then stepped further for roving for purpose to prepare input package. This roving is attenuated by rollers and then spun around the rotating spindle.

## Weaving processes

Weaving is second level after spinning. Here, the yarn from spinning section is sent further for doubling and twisting. It is then processed for shifting of yarn in convenient form of package containing sufficient yarn length. At the stage of reeling the exhausted packages are replaced with the new ones which is followed by wrapping. The wrap yarn is provided a protective coating to lessen the breakage of yarn which is called as sizing. It is considered as an important segment. This yarn is then processed for winding on weavers' beam supported by the final step of weaving

## Wet processing

**Dyeing** as well as printing of fabrics are usually carried before the application of other finishes to the product in dyeing mills. It provides color to fabric and also improves the appearance of it. The product is then converted from woven to knitted cloth known as finishing. Finishing is specifically carried after dyeing or printing to give a specific look.

**Textile printing** is the process of applying color to fabric in definite patterns or designs. In properly printed fabrics the color is bonded with the fiber, so as to resist washing and friction. Textile printing is related to dyeing but in dyeing properly the whole fabric is uniformly covered with one color, whereas in printing one or more colors are applied to it in certain parts only, and in sharply defined patterns.

**Finishing:** Treatments enhancing appearance include such processes as napping and shearing, brushing, singeing, beetling, decating, tentering, calendaring or pressing, moiréing, embossing, creping, glazing, polishing, and optical brightening.

## 3.3 Workplace Supply chains

### Flow Coloration Process

Inspection of grey cloth → Stitching → Cropping → Brushing → Singeing → Desizing  
Scouring → Bleaching → Souring → Washing → Drying → Mercerizing  
Printing → After treatment → Finishing → Inspection → Packing → Baling

### Flow Chart of Textile Finishing

Dewatering → Slitting → Stentering → Compacting → Final inspection  
Packing → Baling → Deliver

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### Self-check-3

#### Test-I: Choose the best answer (each question contains 4point)

1. Which one of the following is not true about types of dyes are used in the textile industries as raw materials?
  - A. Basic dyes
  - B. Acid dyes
  - C. Mordant dyes
  - D. fiber
2. Which one of the following is not true about type's chemicals and auxiliaries used in dyeing, printing and finishing?
  - A. Silicon
  - B. Enzymes
  - C. Wetting agent
  - D. yarn

**Instruction:** select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

#### Test II: short Answer writing

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**Instructions:** Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. List work place materials?
2. Define and explain supply chain?
3. Show the diagram textile manufacturing process?

### Operation sheet 3

- **Operation title:** Drafting Flow Chart of Textile Manufacturing
- **Purpose:** To draft Flow Chart of Textile Manufacturing
- **Instruction:** You have given 30Minut for the task and you are expected to write the answer
- **Tools and requirement:**
  1. Paper,
  2. pencil
  3. ruler
  4. Scale
- **Steps in doing the task**
  1. Spinning
  2. Weaving
  3. Dyeing + Printing + Finishing
  4. Garments Manufacturing
- **Quality Criteria:** supply chain of textile manufacturing keeps the standard
- **Precautions:** use OHS practice

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### Lap Test-3

- Task-1: draft the supply chain of coloration process
- Task-2: draft the process flow chart of process

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## UNIT FOUR: WORKING PLACE PRACTICES

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

- workplace practices
- workplace key activities
- key personnel and their roles
- OHS practices
- production workplace areas and their roles
- Recording and reporting accidents and incidents

This guide 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:

- Identifying workplace practices
- Describing workplace key activities
- Identifying key personnel and their roles
- Identifying OHS practices
- Identifying production workplace areas and their roles
- Recording and reporting accidents and incidents

#### 4.1 work place practice

Textiles are an integral part of our lives, from the clothes we wear to the fabrics that cover our sofas, floors, windows, beds, and more.

And the textile industry in America, like nearly all others, is subject to important workplace health and safety regulations specific to textile manufacturing.

##### **Manage Workplace Observations and Incident Reporting**

Textile companies need to ensure that employee exposure to certain chemicals doesn't exceed safe levels. For example, several of the chemical dyes commonly used in coloring fabrics can cause cancer. There are ways to mitigate the danger though, and that's where workplace observations and incident reporting come in.

Solutions may be as easy as donning personal protective equipment (PPE) and clothing and eyewear or as complex as measuring exposure to certain chemicals by taking air samples at regular intervals. Encouraging employees to report incidents through an easily accessible EHS software application can deliver appropriate responses more quickly. And through investigation and analysis of incidents, revisions can be made to company protocols that reduce the chances of similar incidents happening again, thereby improving everyone's safety.

##### **Monitor and Track Industrial Hygiene**

Health and safety procedures can go beyond best practices like ventilation and chemical exposure standards. They may also dictate ongoing monitoring and assessment rules, such as is required when cotton dust is present in a workplace. Industrial hygiene software can help set up and maintain a schedule of exposure assessment and monitoring, as well as recording and reporting results as needed. Risk assessments built into EHS systems can flag processes or procedures that need revision to ensure safety.

Tips for minimizing and mitigating exposure, harm, and liability in the textile industry include familiarizing your team with local, state, and federal regulations, as well as industry standards. In addition, coming up with an EHS training protocol ensures that rules and regulations are learned, understood, and adhered to. Include drills and practices in your EHS processes and procedures. Establish a chain of command and ensure that everyone along the chain of command understands their role and responsibilities in addressing workplace health and safety incidents.

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Make sure that procedures are in place for workplace accidents and safety violations, both those that cause active and immediate harm and those that are merely infractions of the rules. When training is developed and delivered, it should be documented in your EHS application. When ongoing training is carried out, document these, too. Include drills and practices in your EHS processes and procedures. Establish a chain of command and ensure that everyone along the chain of command understands their role and responsibilities in addressing workplace health and safety incidents.

#### 4.2 work place key activities

Most textile workers operate or tend machines. In the most modern plants, the machines are often quite sophisticated and include computerized controls.

Workers in textile manufacturing can be grouped in several categories. Some workers operate machines that clean and align fibers, draw and spin them into yarn, and knit, weave, or tuft the yarn into textile products. Other workers, usually employees of chemical companies, tend machines that produce synthetic fibers through chemical processes. Still other workers prepare machines before production runs. They set up the equipment, adjusting timing and control mechanisms, and they often maintain the machines as well. Another category of workers specializes in finishing textile products before they are sent out to consumers.

The following paragraphs describe just a few of the many kinds of specialized workers in textile manufacturing occupations.

In the transformation of raw fiber into cloth, staple cutters may perform one of the first steps. They place opened bales of raw stock or cans of sliver (combed, untwisted strands of fiber) at the feed end of a cutting machine. They guide the raw stock or sliver onto a conveyor belt or feed rolls, which pull it against the cutting blades. They examine the cut fibers as they fall from the blades and measure them to make sure they are the required length.

Spinneret operators oversee machinery that makes manufactured fibers from such nonfibrous materials as metal or plastic.

Chemical compounds are dissolved or melted in a liquid, which is then extruded, or forced, through holes in a metal plate, called a spinneret. The size and shape of the holes determine the shape and uses of the fiber. Workers adjust the flow of fiber base through the spinneret, repair breaks in the fiber, and make minor adjustments to the machinery.

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Frame spinners, also called spinning-frame tenders, tend machines that draw out and twist the sliver into yarn. These workers patrol the spinning-machine area to ensure that the machines have a continuous supply of sliver or roving (a soft, slightly twisted strand of fiber made from sliver). They replace nearly empty packages of roving or sliver with full ones. If they detect a break in the yarn being spun, or in the roving or sliver being fed into the spinning frame, they stop the machine and repair the break. They are responsible for keeping a continuous length of material threaded through the spinning frame while the machine is operating.

Spinning supervisors supervise and coordinate the activities of the various spinning workers. From the production schedule, they determine the quantity and texture of yarn to be spun and the type of fiber to be used. Then they compute such factors as the proper spacing of rollers and the correct size of twist gears, using mathematical formulas and tables and their knowledge of spinning machine processes. As the spun yarn leaves the spinning frame, they examine it to detect variations from standards.

A textile production worker adjusts the tension on one of the rapier weaving machines. Once the fiber is spun into yarn or thread, it is ready for weaving, knitting, or tufting. Woven fabrics are made on looms that interlace the threads. Knit products, such as socks or women's hosiery, are produced by intermeshing loops of yarn. The tufting process, used in making carpets, involves pushing loops of yarn through a material backing.

Beam-warper tenders work at high-speed warpers, which are machines that automatically wind yarn onto beams, or cylinders, preparatory to dyeing or weaving. A creel, or rack of yarn spools, is positioned at the feed end of the machine. The workers examine the creel to make sure that the size, color, number, and arrangement of the yarn spools correspond to specifications. They thread the machine with the yarn from the spools, pulling the yarn through several sensing devices and fastening the yarn to the empty cylinder. After setting a counter to record the amount of yarn wound, they start the machine. If a strand of yarn breaks, the machine stops, and the tenders locate and tie the broken ends. When the specified amount of yarn has been wound, they stop the machine, cut the yarn strands, and tape the cut ends.

Weavers or loom operators operate a battery of automatic looms that weave yarn into cloth. They observe the cloth being woven carefully to detect any flaws, and they remove weaving defects by cutting out the filling (cross) threads in the area. If a loom stops, they locate the problem and either correct it or, in the case of mechanical breakdown, notify the appropriate repairer.

After the fabric is removed from the loom, it is ready for dyeing and finishing, which includes treating fabrics to make them fire-, shrink-, wrinkle-, or soil-resistant.

Dye-range operators control the feed end of a dye range, which is an arrangement of equipment that dyes and dries cloth. Operators position the cloth to be dyed and machine-sew its end to the end of the cloth already in the machine. They turn valves to admit dye from a mixing tank onto the dye pads, and they regulate the temperature of the dye and the air in the drying box. They start the machine, and when the process is complete, they record yardage dyed, lot numbers, and the machine running time. Colorists, screen printing artists, screen makers, and screen printers print designs on textiles.

Cloth testers perform tests on “gray goods”—raw, undyed, unfinished fabrics—and finished cloth samples. They may count the number of threads in a sample, test its tensile strength in a tearing machine, and crease it to determine its resilience. They may also test for such characteristics as abrasion resistance, fastness of dye, flame retardance, and absorbency, depending on the type of cloth.

### 4.3 key personnel and their roles

Key personnel are employees in a company who have essential duties. These individuals are responsible for keeping an organization running smoothly and efficiently. They over see their fellow employees, motivate them and ensure that the company's operations run effectively even when the management is not around.

Key personnel make tangible contributions that steer their company forward and exceed expectations. Their input directly affects the company's growth, and their skills are hard to replace

Apart from performing their own work optimally, key personnel also motivate others to meet goals and accomplish tasks.

### How to identify key personnel among other employees

#### 1. Evaluate employee potential

Although employee performance determines their expertise and ability, you should look beyond it to identify your business's key personnel. An employee needs more than just high performance to qualify for a leadership position, for example. They also need to show potential in other aspects, such as a desire to grow personally and a desire to help the business and its employees grow.

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## 2. Assess accountability

Owning a mistake and using it as a tool for improvement is a quality of a good leader. Identify employees who take responsibility for their shortcomings without shying away. Leaders are not afraid of failure, and they carry the blame regardless of who caused it. Key personnel also hold important roles within a business, so they must always be held accountable for their duties.

## 3. Look for the ability to multitask

Leadership involves being able to successfully handle multiple tasks at once. Identify potential key personnel in the workforce, and assign them additional responsibilities. Watch how they handle the tasks to see who is best at multitasking.

## 4. Find out if they take initiative

Some employees work toward goals, while others watch and wait for things to happen. Look for employees who act as catalysts to ensure that projects are completed successfully according to schedule. A company's key personnel should be able to take the initiative and complete their work without being told to do so.

### Roles of key personnel

Key personnel roles vary depending on the organizational structure or type of business. Here is a list of key personnel positions that most businesses have:

- **Operations manager:** These individuals are responsible for a business's financial success. They handle lenders, vendors and community leaders who are instrumental in business operations. An operations manager ensures the business's vision, goals and strategic plans are in motion.
- **Accountant or bookkeeper:** Employees handling these key roles in a company are responsible for cash management. They prepare budgets, payrolls, balance sheets and income statements and collect receivables.
- **Receptionists:** Also referred to as frontline employees, receptionists handle company mail, welcome visitors and manage phone calls. They can also take on other tasks designated by the business managers.
- **Quality control manager:** Food and product manufacturing companies must meet EPA or OSHA compliance, among other agencies. A quality control manager monitors product quality, files reports and trains employees.

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- **Office manager:** This key employee acts as a purchasing agent, director for human resources or supervisor over vendors and salespeople. They oversee several duties that are not related to production.
- **Marketing manager:** These employees handle the promotion and sale of products or services.
- **Foreperson or lead person:** Employees holding these titles are left in charge when the top management is absent. However, you must understand all company operations and be able to handle employees harmoniously.
- **IT professionals:** Regardless of the business's size, these professionals develop and secure company information. They're essential for maintaining company websites and keeping networks running smoothly.

The primary role of key personnel is to handle different tasks that lead to successful business operations. Key employees help the management team structure an efficient workforce and develop plans to help the company achieve its goals.

### **Traits of key personnel**

If you're in charge of identifying current key personnel or recruiting a new employee for a key role, look for top talent who can help the company run and grow effectively. Here are traits to look for in key personnel:

#### **Leadership skills**

Key personnel should exhibit strong leadership skills, especially if they are in a management or supervising role. Besides being a diligent and natural leader, key personnel should be able to boost business productivity and train other employees.

#### **Excellent communication skills**

An employee who can communicate with brevity and clarity among peers and business management is an asset to the company. Both verbal and written communication skills are essential in customer service and marketing roles, though they're important for any key employee. Also, key personnel should be able to accept constructive criticism graciously.

#### **Mental agility**

Key personnel should be prepared to handle emergencies and solve problems quickly and efficiently. Top employees can resolve complex issues at work without waiting for the management to tackle them. They take responsibility and follow company procedures and policies at all times.

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### **Time management**

Key personnel prioritize and complete their duties efficiently to handle their workload without burning out. Look for an employee with excellent time-management skills for efficient and timely services.

### **Organizational skills**

An organized employee who is focused on achieving the company's mandate makes a strong candidate for a key personnel role. Organizational skills boost workplace efficiency and grow the reputation of the business among clients and competitors

### **Ability to delegate**

Using their exemplary ethics, key personnel delegate duties to employees and ensure they feel valued. They're capable of identifying employees who can handle specific tasks and motivating individuals to work harder and get their work done.

### **Empathetic and compassionate**

Employees in key roles must be able to handle conflict effectively at work, such as by helping other employees solve misunderstandings without approaching management. Key personnel should approach issues within their teams empathetically and compassionately to come to positive resolutions.

### **Creative and ambitious**

Although not everyone is naturally creative, some skills are learned through collaboration, imagination and experimentation. Using their creativity, key personnel strive to advance their company goals without waiting for the managers to push them.

## **4.4 OHS practices**

Textile industries involve diverse operations including fiber synthesis, weaving, manufacturing, dyeing and finishing. One of the oldest industries, textile operations have been studied extensively and many workplace standards exist.

There are numerous health and safety issues associated with the textile industry. They include: chemical exposure from the processing and dyeing of materials, exposure to cotton and other organic dusts, musculoskeletal stresses, and noise exposure.

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## Occupational Health and Safety – Textile Industry



The cause for the deaths included asphyxiation, fall from heights, mechanical injuries, injuries from material handlings and fiber and cotton dust inhalation.

### **Callous attitude in following the safety measures can cause health hazards in the workers**

As the textile industry is a labor-oriented industry, unsafe practices can affect the well-being of workers and their families.

### **Health hazards associated with various units are:**

**Production and ginning unit:** Physical injuries in fingers, back, and eye, arm/shoulder, leg and head injuries include direct costs (medical compensation) and indirect costs (down time and loss of productivity).

**Yarn manufacturing unit:** The manufacturing unit involves machineries having higher rotary and travelling speeds. These speeds can cause noise pollution resulting in headache and dizziness. Also, the workers and supervisors regularly engage themselves in processing and spinning of cotton with these machines. Continuous inhalation of cotton dust result in lung diseases and their symptoms involve tightening of chest, coughing and shortness of breath.

**Synthetic fiber production unit:** A large amounts of solvent vapors are released when the filaments arise from the spinnerets by means of spinning. There is a high probability of cancer and heart diseases in such cases which can further result in fatalities.

**Dyeing and printing:** Dyeing is a physical affinity between the dye and the fiber of the fabric. Flammable solvents are used in the processes, leading to fire hazards. Workers deal with dangerous levels of chlorine on a daily basis and can cause lung edema. Usage of organic solvents result in dermatitis (skin disease).

Printing results into formation of sludge that can have environmental issues with ground and groundwater contamination.

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Each factory should comply with the procedures scrupulously to prevent the potential hazards. Staff members who regularly handle chemicals should have an easy access to Material Safety Data Sheets (MSDS) as they provide information such as physical data (melting or boiling points), toxicity, reactivity, disposal methods, storage conditions, and protective equipment and spill or leak procedures. Along with the training, an availability of MSDS in local language enables the workers to read the contents within without any issues.

The storage area for the dyes and other chemicals should be cool and dry areas. One member in each shift of the staff should be trained in first aid to ensure outreach in case of an emergency.

**Other preventions include:**

- Regular cleaning of the floors with a Vacuum cleaner to cut down the dust spread.
- Monitoring and repairing dust control equipment and ventilation systems.
- Annual training programs for employees to create health hazard awareness.
- Availability of Personal Protective Equipment (PPE) for safe work practices.
- Proper ergonomic infrastructure to avoid musculoskeletal strain.
- Well-maintained machinery to reduce noise pollution.
- Ensure sanitary facilities for the workers to encourage personal hygiene.

There is an increase in the technological advancements in this industry to enhance the range of fabrics and their production. Simultaneously, the progress should be backed by stringent safety policies to promote safety at the workplace.

**4.4.1. Hazard identification and control**

Hazards in Textile Industry are varied and encompass many aspects, like hazards related to machinery, handling of materials including chemicals, use of pressure vessels, fire hazards and overall working environment.

**1. Machine Related Hazards:**

Based on studies carried out it is learnt that unsafe conditions contribute to almost half the total accidents occurring in a textile mill. It is therefore necessary to briefly review a few important machines in each of the sections.

**i. Spinning Preparatory and Spinning:**

In machine related hazards there are a number of nip points which are left unguarded. These points could be identified as the feed and calendars rollers of the blow-room machinery, carding machines, combers and drafting zones of all the frames (draw, infer, flyer and ring).

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Many a time argument are put up to say that any guard attempted at such points would interfere into the working of the rollers. But it is, at least possible to provide mesh covers with interlock on some of the rollers in the blow-room machinery.

Drafting zones on the draw frame could be covered with total enclosures as is already available on some machines. There is a need to ensure that these enclosures are well interlocked to stop the machine when enclosures are opened.

Now, looking at the rotating beaters in the blow-room, the three wire clothed cylinders, the licker in, the cylinder and the doffer of the carding machine and the comber segment of the comber all of these could cause all severe accidents, if contacted while in motion.

The beaters have been provided with good covers with a mechanical interlock. This interlock should be maintained in order. Many times, this is tampered with.

The carding cylinders are provided with good covers but the need for carrying out stripping operation in every shift makes it necessary to work with covers open, posing severe hazard. This stripping operation should necessarily be done by well-trained men, with reliable ropes on the stripping roller. (The stripping roller is thrown out if the ropes break during this operation.)

However, newer machines have a stripping attachment on them as an integral part. The access to the licker in from below while collecting dust and droppings could result in severe injuries. This should be guarded by providing a hinged swing door; swinging back upwards and preventing contact while collecting dust.

In the combers there is enough scope to provide at least a hinged transparent sheet or such, so that no contact with the rotating segment, the nipper or the gripper is possible. The comber and its segment rotate at a high speed.

Because of this high speed the eye perceives the comber and segment as stationary. This perception tempts the worker to access these rotating parts while cleaning.

The flyer frames have the flyers rotating and give a free access to the hands and are likely to grab loose clothing. The present designs of the machines have not come with covers or photoelectric devices to prevent access to the flyers.

However, there could be interference in the operation with such devices and calls for detailed examination in locating them on the machine at an appropriate place. Till such time employing trained personnel on these machines is essential.

Conventional ring frames have hazards associated with the stopping of bobbins with the left hand index finger. These results in finger cut injuries, if the bobbin involved has its metallic shields broken.

Attempts are being made to eliminate this hazard by frequent inspection and elimination of bobbin which are with broken shields, use of tongs to grip the spindle (a very rare practice in India), provision of knee brake or the like, and use of plastic bobbins have limitations if the yarn is subjected to streaming, as also its prohibitive initial cost.

## **ii. Weaving Preparatory and Weaving:**

The conventional winding machines pose a hazard of trapping hands between the rotating drum and the cone/cheese after each knotting. While no suitable preventive measures are coming up, employing skilled operators on these machines is essential. Automatic winders like the cone winder and spoolers have prevented the hands reaching in the vicinity of the rotating drums.

In the warping machine (excepting the old versions), photoelectric devices have been provided in place of the swing bar guards. Opinions differ as to the exact location/position of these photoelectric devices.

The present positioning of this device still leaves scope for access to the beam flanges. An acceptable positioning and multiple photoelectric devices could eliminate this hazard.

Working with sizing machines involves nip at the squeeze rollers and drag rollers. Guards on drag rollers are essential in view of their accessibility.

The conventional looms are the highest contributors of both severe and frequent number of accidents in a loom shed, because of the shuttle flights. The shuttle which is to fly from one end to other on a loom, could fly out of its parts for varied reasons.

A shuttle guard provided on the loom does not really prevent a shuttle from flying out of the loom, but it only helps in arresting the shuttle's tendency to lift upwards and shoot out to heights. Thus, to keep a check on the direction of shuttle flying out, a shuttle guard is provided.

These shuttle guards (fits on the sley) are to be set over the race board so that while the crank shaft is between the bottom and back center, the guard leaves no gap enough for the shuttle to fly out upwards.

Observations and proper setting of looms at frequent intervals will prevent shuttle fly. Shuttle fly is a frequent occurrence and could result in severe injuries. This hazard is absent in the non-conventional shuttle less looms.

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### iii. Processing and Finishing:

In the shearing and cropping machine, the exposed rotating cutters could pose a hazard when accessed. These cutters can be covered using transparent cover.

Many of the machines in the process house generally have nip hazards. They could be calendars, washers, printing machines etc. Many of these nips could be guarded by means of nip bars.

The provision of audio signals to warn workers working near the calendars, drying ranges, stenters etc. could help in preventing entanglement and drag of inattentive operators along with the fabric in process.

In the polymerizing range it is absolutely necessary to provide an interlocking device to ensure that the exhaust fans are on before any fabric is fed into the chamber. This helps in preventing the volatile carrier accumulating which could lead to an explosive situation.

It would be far better to dry out the fabric outside the chamber to eliminate most of the volatile solvent before the fabric enters the chamber. This reduces the quantum of the volatile solvent available in the chamber.

## 2. Material Handling:

A follow up of each operation in Textile Industry would indicate that, starting from raw material to fabric, the material handled is in various shapes and sizes. There are as much as thirty handlings not considering the number of times an empty container roll or beam is handled. All these contribute to almost 10-15% of accidents in textile mill. First considering manual handling, wrong postures are adopted in every stage of such handling.

The laps are held with hands stretched, cans shifted by dragging, carrying of excess bobbins, dragging of baskets/boxes by ropes and so on. These handling methods are to be critically examined and right postures adopted to prevent any excessive strain to arms and back.

Coming to mechanical handling it will be appreciated that the designs of many of the trolleys and trucks have been crude. The equipment's are sometimes heavy to move, the wheels and rollers are placed outside the platforms allowing for run overs.

The handles do not have holds to fasten when not in use, leaving scope for handles dropping on foot. The trolleys do not have knuckle guards. All these have contributed for difficulties in use of these equipment. The common practice is that trolleys and carts are overloaded even to the extent of obstructing onward vision which should be avoided.

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## **I. Handling of Chemicals:**

The processing of Textiles generally involves dilute acids and alkalis and bleach liquors like chlorine, hydrogen peroxide.

Generally, the concentration of the process liquid does not exceed safe concentration levels. However, the bulk of the chemicals received are of higher concentration and precaution in respect of storing them in compatible containers must be complied with.

In case of chlorine a better practice is to store the required minimum quantities of it. Care also should be taken that proper equipment's and systems are readily available to handle any emergencies like leaks. The outlets from storage vessels of acids and alkalis and the piping should resist corrosion.

While nothing definite has been established on the adverse health effects of the finished dyestuffs, it is advisable the dyes are handled with care while preparing liquors and pastes. The solvents used for printing which are highly volatile should be stored away from process zone and the quantities brought in for use should be the minimum.

The storage areas of the fuel oil for boilers etc. need to fulfil the statutory requirements as applicable to bulk storage. The supply of safety data sheets in respect of the substances handled should be made available to the personnel handling them.

### **ii. Use of Pressure Vessels (Unfired):**

It is necessary to consider the sizing cylinders, kiers and to some extent calendars and drying range as pressure vessels though the pressure ranges are not very significant, all tests and examination are to be carried out to ensure their safe performance.

It is essential that the siphoning systems on these cylinders are maintained well to deliver out the water condensed and prevent any damage of these cylinders. It is also required to maintain the vacuum breakers provided to prevent any cylinder collapse. All instrumentation and safety gadgets must be examined periodically for their reliability.

### **iii. Fire Hazards:**

The go down where cotton bales are stacked should be well ventilated so that the hoop iron do not impart and generate sparks as a source of ignition. It is also to be kept in mind that any broken glass pane on windows with its sharp edge form a prismatic effect converging sun rays on to the cotton bales and could be a source of ignition. Use of naked flames for soldering and welding on the shop-floor should be under permit and supervision.

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Lamps used to prevent lapping or warming up could ignite fibers accumulated over it and later setting it to fly around will also be a source of ignition. Mechanical friction with the availability of dripping lubricating oil and loose fiber could initiate a fire.

Oiling should be done after ensuring that the oil holes are clear and the oil is reaching the part being lubricated. The electrical panels switch boards and other electrical equipment's are also accumulated with dust and needs attention.

Processing of fibers likely to accumulate static charges should be carried out under effective grounding, bonding and antistatic controls to prevent accumulation of static charge.

Singeing machine should be invariably being provided with a solenoid valve on the fuel line to arrest the fuel supply, in the event of an electrical failure. This prevents the stationary fabric undergoing singeing from being ignited.

It is also desirable to store in isolation, freshly dyed fabrics as they could ignited due to spontaneous ignition.

#### 4.4.2. Risk assessment

##### **Chemical risk assessment in textile**

Various chemicals are used for production of textile products and garments and as a result these chemicals are intentionally or unintentionally present in the finished consumer products. Though there are many benefits of using and presence of these chemicals in textiles, they may have detrimental effect on consumer health and environment upon exposure that cannot be overlooked. Such risk related to textile chemicals occurs due to exposure. There are many kinds of exposure that may occur in various stages of textile production, as well as use and recycling. In this chapter, all such kinds of risk arising from various textile chemicals and substances, their extent of detrimental effects, and assessment methods of risk are presented.

Risk assessment has been carried out in different dry and wet processing areas of a garment finishing factory. Presently, control over different health and environmental hazards due to the exposure of chemicals is very difficult to achieve by textile and fashion industries due to diversity of chemicals used and their large volume of consumption during manufacturing process. Also, complex and multitiered textile supply chain is another factor making the process more tedious. Chemical information is not always transparent and does not always move smoothly along the supply chain. The increasing sense of social responsibility and public awareness about the environment has forced the textile manufacturers to produce more

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environmentally friendly products. Many companies are focusing on the use of sustainable production ways. This chapter gives a brief overview of understanding the chemical risk in textile and fashion industries.

#### 4.4.3. Implementation of risk reduction measures

A variety of chemicals, auxiliaries and dyes are being used in the textile processing industry during production activities like sizing, desizing, scouring, bleaching, dyeing, printing, washing, finishing and other auxiliary processes. The chemical procurement, storage, transportation and consumption become routine work in the textile unit. Some of the dyes and chemicals are having potential hazards to the operatives and the surrounding communities and the environment. The chemical management system (CMS) is a comprehensive tool which gives guideline and requirements to comply during daily chemical handling and usage. The present paper describes, how the CMS can be implemented in the process house.

The textile sector certainly is not chemically intensive as other global industries, but its variety of chemical operations and materials do present a range of potential hazards to its workers and the surrounding communities and the environment.

In recent years increased attention has been given to the chemicals which are contained in textile products as well as exposure of textile industry workers to hazardous chemicals and environmental effects<sup>2</sup>. Some of them are by nature hazardous. When the hazardous chemicals are heated, air or with each other, a vigorous reaction leads to accidents. There is a need for more knowledge and also practical tools that can be used to reduce the exposure of operatives and nature to harmful chemicals.

It is necessary for Employers to make necessary arrangements to ensure the safety and health of employees, which handles, store and transports chemicals. In order to make such arrangements the employer has to evaluate work related hazards or potential hazards and develop safety procedures and risk control measures.

#### **Steps involved in implementation of chemical management system (cms)**

The following steps are involved in the implementation of a CMS in the industry.

- 1) The commitment of Top management for CMS
- 2) Regulation compliance
- 3) Risk assessment
- 4) Chemical Inventory

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- 5) Labeling of containers
- 6) Chemical storage and handling
- 7) Emergency preparedness
- 8) Disposal of Hazardous substances
- 9) Training

#### 4.5 Production workplace areas and their roles

##### **Four Types of Fabric Manufacturing Process in wet processing:**



*Fig 4.1 Fabric wet processing process*

**Fabric wet processing** is a process used to dye and finish textiles. The dyeing process involves the application of colorants to fabric in order for it to become colored. The wet processing process could be elaborate in some detail wet preparatory processes are as respectively Fabric Inspection, Stitching, De-sizing, Scouring, Bleaching, Dyeing, Printing, Finishing.

**Textile Finishing** may involve adding additional properties such as anti-pill, soil release, or flame-retardant treatments with different textile auxiliaries. That is chemically applied before packaging and shipping.

**Textile Printing** includes the use of inkjet printing on fabrics like T-shirts, sweatshirts, aprons, children's clothes, etc., screen printing on various types of clothing including shirts and hats, etc.; digital textile printing which uses computers/plotters to print onto fabric; flexography which prints onto plastic film; Gravure Printing which prints with engraved cylinders onto paper; Dye Sublimation Printing where heat-activated chemicals are transferred onto a carrier medium from an inkjet printer.

There are several types of textile finishing, which can be done by hand or machine. Dyeing involves the application of colorants to fabric in order for it to become colored. Finishing may

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involve adding additional properties such as anti-pill, soil release, or flame-retardant treatments that are chemically applied before packaging and shipping. Printing a Dye Sublimation Printing where heat-activated chemicals are transferred onto a carrier medium from an inkjet printer.

#### 4.6. Recording and reporting accidents and incidents

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) require employers, or in certain circumstance others who control or manage the premises, to report to the relevant enforcing authority and keep records of:

- Work-related deaths
- Work-related accidents which cause certain specified serious injuries to workers, or which result in a worker being incapacitated for more than seven consecutive days
- certain 'dangerous occurrences' (near-miss accidents)
- injuries to a person who is not at work, such as a member of the public, which are caused by an accident at work and which result in the person being taken to hospital from the site for treatment

**Reports** to the enforcing authority of all of the above categories, except over-seven-day injuries, must be made immediately by the quickest practicable means and followed up by a written notification within 10 days. Reports of over-seven-day injuries must be sent to the enforcing authority within 15 days.

In addition, **records** must be kept of all of 'over-three-day injuries', which are those where a person who is injured at work is incapacitated for more than three consecutive days. Over-three-day injuries do not, however, have to be reported to the enforcing authority.

A person is incapacitated if they are unable to carry out the activities they would reasonably be expected to do as part of their normal work. The period of time for an over-three-day injury or an over-seven-day injury does not include the day of the accident, but it does include any weekends or rest days.

#### **Why report and record?**

Reporting and recording are legal requirements. The report tells the enforcing authorities for occupational health and safety (HSE and local authorities) about serious incidents and cases of disease. This means they can identify where and how risks arise and whether they need to be investigated.

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It also allows HSE and local authorities to target their work and provide advice on how to avoid work-related deaths, injuries, ill health and accidental loss.

Information on accidents, incidents and ill health can be used as an aid to risk assessment, helping to develop solutions to potential risks. Records also help to prevent injuries and ill health, and control costs from accidental loss.

You must keep a record of:

- Any reportable death, injury, occupational disease or dangerous occurrence
- All work-related injuries that result in a worker being away from work or unable to do their full range of normal duties for more than **three** consecutive days (not counting the day of the accident but including any weekends or other rest days)

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## Self-check-4

**Test1-:** Choose the best answer (each question contains 4point)

1. How to identify key personnel among other employees
  - A. Evaluate employee potential
  - B. Assess accountability
  - C. Look for the ability to multitask
  - D. all
  
2. The following steps are not involved in the implementation of a chemical management system
  - A. The commitment of Top management for CMS
  - B. Regulation compliance
  - C. Risk assessment
  - D. Chemical Inventory
  - E. Fabric inventory

**Test II: short Answer writing (each question contains 5 point)**

**Instructions:** Answer all the questions listed below. Illustrations may be necessary to aid some explanations/answers.

1. List type of hazards in textile industry?
2. List and discuss legislation, guidelines and their requirements in textile industry?
3. Define concept of product quality and discuss the factors of quality product?
4. Write steps of risk assessment?
5. Write Steps involved in implementation of chemical management system
6. Why Recording and reporting accidents and incidents
7. Write types of Fabric wet processing process
8. Discuss hazard (OHS practice) and control mechanism in textile industry?

## UNIT FIVE: PRODUCTIVE WORK SKILL

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

- Current work required skills
- Skill limitations
- Skill development opportunities
- Learning skills plan
- Learning and development activities

This guide 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:

- Identify current work required skills
- Identify skill limitations
- Identify skill development opportunities
- Develop learning skills Plan
- Participate in learning and development activities

## 5.1 Current work required skills

### Using technology

- Access and understand workplace-specific instructions in a variety of media
- Use a range of communication and emergency technology

### Ability to work in team and solve problems

- Work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities.
- To emergency situations in a coordinated way.

### Solve problems

- Accurately evaluate the emergency
- Identify solutions to preserve life or counteract emergencies

### Ability to Communicate and manage self

- Oral, written and IT communication skills are the media for sharing knowledge, interests, attitudes, opinions, feelings, and ideas in order to influence and ultimately lead others.
- Communication skills include the ability to: listen and observe to gain understanding; clearly and effectively relate ideas; use strategies and skills to work effectively with others; and analyze and evaluate the effectiveness of formal and informal communications.
- communicate effectively about prevention of hazardous circumstances which may lead to emergencies
- complete reports, records and other workplace documentation as required to minimize hazards, complete emergency procedures
- effectively and assertively communicate an emergency and call for assistance as required
- effectively communicate with others by using questioning to identify and confirm requirements, share information, listen and understand
- read and interpret documentation from a variety of sources
- use and interpret non-verbal communication, such as hand signals

### Ability to produce quality product by applying standards “Level targeting” for establishing a quality assurance system

From the perspective of preventing recurrence of rolling stock failures, the company has Identified the current level of quality control for each check item, and set its improvement

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Target in frontline operations at development workshops, etc. as an internal system for Accident recurrence prevention

Check items are as follows:

- Conveying instructions, failure information, etc.
- Ensuring the implementation of countermeasures
- Preventing human error;
- Object checks
- Checklist
- Quantity control of short-circuit lines, etc.
- Quantity control of tools, etc.
- Maintaining technological capacity
- Education on new recruits / reassigned workers.

### Quality measures

**Equipment Performance:** Significant improvement in (but not limited to) the following Areas:

- Improvement in component or system availability.
- Reduction in percentage of failures identified in tests/ surveillances.
- Reduction in the number of limited condition of operations routinely entrée

### 5.2. Skill limitations

What is the skills gap?

Sometimes, it’s impossible to find a candidate that checks all your boxes. “The skills gap is a term that describes the gaping hole between the requirements of a job and what job candidates possess in terms of professional backgrounds and expertise,” explained Jason Lovelace, former president of talent acquisition solutions at career Builder.

As the job market increasingly focuses on tech skills, employers are having a challenging time finding applicants with the background and experience needed to meet the needs of changing job roles.

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## Skills for Industry

If candidates need industry specific skills for a job, we may be able to offer funding and support to help with short-term pre-employment or in-work training. Training can be delivered by you to meet your requirements. We work with you to develop the best approach.

The programs are designed to:

- Be short
- Be cost effective
- Address skill and labor shortages
- Provide assistance with in-work support.

## The Skills Gap Is Costing Businesses

Being unable to find employees with the necessary skills is costing companies serious money. Here's how to address the skills gap.

- Many companies spend more than \$800,000 annually looking for qualified employees. The current skills gap limits hiring pools for recruiters.
- Industries have experienced the most significant skills gap among workers. Lacks of education and training in technology disciplines have caused the gap.
- On-site and off-site training are strategies for fixing the skills gap. Scholarships and paid internships could also entice students to the field.

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### 5.3. Skill development opportunities

Skills have become increasingly important in the globalized world. Vocational and technical skills are essential, but employers are seeking applicants with more. They want employees who can continue to learn and adapt; read, write and compute competently; listen and communicate effectively; think creatively; solve problems independently; manage themselves at work; interact with co-workers; work in teams or groups; handle basic technology, lead effectively as well as follow supervision.

These **core skills for employability** are both important to employers' recruitment and enhance an individual's ability to secure a job, retain employment and move flexibly in the labor market as well as engage in lifelong learning.

Employability entails much more than the ability to get that first job. It is having the capacity to network and market oneself, navigate through a career and remain employable throughout life. It requires the ability to ask questions, acquire new skills, identify and evaluate options, understand rights at work including the right to a safe and healthy work environment, adapt successfully to changing situations and the courage to innovate.

### 5.4 learning skills plan

A development plan will often be part of your employer's appraisal system. This will help you track achievements, areas for improvement, long-term objectives and training plans

In order to be effective, you must consider the following.

- Success criteria must be realistic: if they are not, you are just setting yourself up for failure.
- You should identify reasonable goals.
- Your action plans should be accessible – consider the resources you have available to you in the workplace.

### 5.5 Learning and development activities

Human resources training and development, which defined employability skills as the skills, knowledge and competencies that enhance a worker's ability to secure and retain a job, progress at work and cope with change, secure another job if he/she so wishes or has been laid off and enter more easily into the labor market at different periods of the life cycle. Individuals are

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most employable when they have broad-based education and training, basic and portable high-level skills, including teamwork, problem solving, information and communications technology (ICT) and communication and language skills. This combination of skills enables them to adapt to changes in the world of work.

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**Self-check-5**

**Test-I:** Choose the best answer (each question contains 4point)

1. Which one of the following is not true about current work required skills?
  - A. Ability to work in team and solve problems
  - B. Using technology
  - C. Ability to Communicate and manage self
  - D. Solve problem
  - E. Development activities
2. In order to be effective, learning skills plan must not consider
  - A. Success criteria must be realistic
  - B. You should identify reasonable goals.
  - C. Your action plans should be accessible
  - D. skill limitations

**Part II: Short answer writing**

Direction: Give short answer to the following questions. Time allotted for each item is 2mniut and each question carry 4 point.

1. skill limitations
2. learning skills plan
3. skill development opportunities
4. solve problems
5. learning and development activities

## UNIT SIX: MANAGING OWN WORK

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

- Own work's tasks and responsibility
- Initiative in own work processes
- Problem-solving strategies
- Monitoring own work
- Working effectively and cooperatively in team

This guide 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:

- Take own work's tasks and role responsibility
- Use improvements initiative in own work processes
- Use problem-solving strategies
- Monitor own work
- Work effectively and cooperatively in team

## 6.1. Own work's tasks and responsibility

Defining roles and responsibilities doesn't just help you find the right person for the job. It also improves employee experience and supports the efficiency of your organization. Let's take a look at why it's so important for employees to understand their roles and responsibilities.

### **What are job roles and responsibilities?**

Every role has key responsibilities that fit with that position. It's important to understand the meaning of the terms when considering the importance of roles and responsibilities. This will ensure that everyone can perform their job efficiently.

The individual roles that make up a team vary depending on the organization or business. Let's take the role of a customer service representative as an example.

The duties and responsibilities of a customer service representative are to:

- communicate with customers via phone, email, and social media
- respond promptly to customers' complaints and questions
- give customers information about products and services
- process orders, forms, applications, and requests
- maintain a positive and professional attitude toward customers

### **The benefits of defining roles and responsibilities at your organization**

Clearly defining roles and responsibilities can help your organization in more ways than one. From boosting operational efficiency to improving your hiring process, let's look at some benefits.

#### **Improve your hiring process and empower staff**

It's important that both internal and external candidates understand a role's responsibilities. This way, you can give your entire team and hiring process a boost.

Candidates will have more precise expectations of the role and what success looks like in it. At the same time, your broader team will understand why new hires are on board, reducing friction.

Defining roles and responsibilities also boosts transparency. It gives team members in a new role a clearly defined path from day one.

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### **Waste less of your organization’s time and money**

With well-defined responsibilities, the organization spends less of its resources ironing out redundancies. It also lessens the likelihood of interpersonal conflict. It can also help combat the challenges of working from home because remote employees will clearly understand what they are supposed to do.

It's just as important for supervisory and reporting chains to be well-defined. This way, the organization will experience less drain on its human resource management. In turn, this makes operational efficiency less of a lift and more of a natural output for all.

### **How do I start defining roles and responsibilities at my organization?**

Begin by asking the question: What issue has this position been created to address?

Do you have a product or service? Do you have waiting customers? Do you need to be able to serve your customers efficiently and effectively?

Maybe you need to get more customers and different types of customers. Or maybe you need different types of products.

If yours is a longstanding organization, you may be looking to ensure that you are running a tight ship. It’s tempting to just cut and paste existing roles. But it’s worthwhile to reconsider whether the issues and needs of the organization have changed.

However, your company might be a new venture. In this case, the initial definition of roles and their key responsibilities within a clear chain of command is an opportunity.

### **What is a role, and how do you define them in your organization?**

There are several different business roles within an organization. And each role is critical to the overall success and operations of the company. Remember that there are no great one-person organizational roles: everyone plays a part.

But before you can assign roles, you need to define them. Here’s how to specify your organization’s roles:

### **Understand what work needs to get done**

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An organizational role is defined by its function within a larger team. This is true whether they are officially part of a team or not. The team is defined by its function within the larger organization.

But to define any role in your organization, first start by analyzing the employee's tasks. These are the tasks that any single employee is responsible for to achieve the organization's end goal. This goal is the service of customers. This is true on both a profit-driven or non-profit basis.

For example, the Acme Widget Company may require the completion of the following tasks to service a customer effectively:

- Phone answering
- Order processing
- Customer relations
- Product and delivery complaint response

All of these tasks can logically be provided by a single person undertaking the role of a customer service representative.

### **Understand how each role fits into your broader team(s)**

The list of tasks in the previous section is an example of a set of tasks defining a specific role. Once those tasks are assigned to that organizational role, they then constitute the responsibilities of the role.

Let's consider a member of a customer service team reporting to a customer service manager. In this case, the role of customer service representative exists only within its team structure. The point of the role is to facilitate communications between the customer and the organization. They also help with inter-departmental communication within the organization itself. A customer service representative cannot stand alone on a stage and get anything done.

### **How to assign a role for your organization, team, or next project**

Once the role is defined, the challenge lies in properly assigning it to an individual employee or prospect. This is an area where responsibilities drive the decision-making process. Once the role is defined, the first consideration is what are the personal characteristics required to fulfill it.

Let's return to the customer service representative example above. Some characteristics needed for this role are:

- Patience
- Communication skills

- Problem-solving
- Empathy

These soft skills are essential for a customer service role. For example, the skill of placating an irate customer shouting over the phone is vital for your customer retention. Plus, the ability to remain calm and analytical, to refuse to be shaken from problem-solving mode, is useful. This is true whether the employee is dealing with an irate customer or a challenging colleague. This means these skills are also crucial for integrating within the team.

Beyond that, the next point of consideration is the candidate’s past experience and resume.

Has the candidate done this sort of job before?

Does the role require an essential hard skill?

Does the candidate have a particular past success that might demonstrate that he or she is a great fit for the role? But maybe past job titles don’t seem to indicate a perfect match?

This is often “first screen” material. Hiring managers will want to take it a step further in the interview process. This can be through an external or internal review.

For example, what are the candidate’s strengths and weaknesses? This is a stock interview question. But it can be used for more substantive purposes than it often is.

The key point to draw from a candidate is whether there is some aspect to their personality or work habits that is at odds with the overarching professional goal of the position.

For example, a customer service representative shouldn’t be:

- Thin-skinned
- Quick to anger
- Defensive

They should be able to regulate their emotions well.

Consider whether the candidate will simply be a good addition to the team. Will they make the team better? This isn’t about “fit” so much as whether the person will find challenge and satisfaction working with the team. They should also bring complementary in-demand skills and perspectives the team needs.

For internal candidates, is there a history of unproductive friction with other colleagues? Friction and dissent can be good things. But it depends on the individual’s maturity in handling the inevitable disagreements or tensions around alternative perspectives or approaches.



Ask the candidate directly about a time when a teammate proposed an idea or plan that contradicted their own. Listen to their language to draw out whether:

- They felt anger or resentment: my idea has to win.
- They saw it as an opportunity to work together: what does he see that I don't?

Look for chemistry with existing team members but don't over-index on "fit." This can lead to homogenous teams that underperform.

More generally, does the candidate bring something to the table that the existing team lacks?

Does the candidate fill a gap? Or is there an issue of redundancy of skill-set?

Is the candidate going to be able to persuade other team members they have a solution to a problem as the new kid on the block?

In other words, a candidate's weaknesses and strengths should be drawn out through historical example questioning. This will reveal the answers to some or all of these questions.

A stock question that candidates often ask in interviews is, "What issue has my position been created to address?"

This is a question the organization should already have asked of itself. It should again ask the candidate: "What have you done in the past to address this issue that we have?"

It is also worth noting that roles need not be permanent. A one-time or intermittent project may involve roles assumed by multiple people. Or it might involve multiple roles assumed by a single person.

## 6.2 Initiative in own work processes

### Ways to Take Initiative at Work

Here are nine ways to take initiative at work:

#### 1. Be proactive

You can be proactive by anticipating what work needs to be done and doing it before you are asked to. Use your knowledge of the job to determine whether you have the competencies to make decisions on your own or whether you should present your ideas to your supervisors before proceeding.

For example, if you are working on a project and your supervisor is out sick for the day, you may not have been assigned a project-related task to do. If you can think of a task to work on that needs to be done to move the project forward, they may commend you for taking initiative and being proactive during their absence.

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## **2. Find opportunities for improvement**

You can take initiative by looking for opportunities for improvement. For example, if you interact with the public and get consistent feedback from clients, you could look for patterns in issues clients encounter. You can then use this feedback to highlight weak points in current company practices and advocate for positive change within the company. To go even further, you could suggest sending out a survey to gauge public opinion and gather more data.

## **3. Voice your ideas**

Sharing your ideas at meetings or individually with colleagues and supervisors is another way to take initiative at work. Expressing your opinion can help you establish your voice within the company and build your reputation as an employee who actively looks for solutions. If you have difficulty voicing your ideas, you can become more comfortable by offering suggestions to coworkers who are looking for help or advice. You can build your confidence and start sharing your ideas in staff meetings and eventually present more fully-formed ideas in group settings.

## **4. Be decisive**

You may find yourself faced with challenging decisions where there are several courses of action you could take. To show initiative, be decisive and choose the best way to proceed. Come up with a few simple solutions to a problem, weigh the pros and cons of each solution and choose which course of action will work best.

## **5. Improve systems, procedures and policies**

If you notice that a policy is outdated, a great way to take initiative is to review it and make suggestions on how it can be updated. You can assess policies by thinking critically about whether they serve your company's and clients' needs, identifying weak points and finding more efficient ways of doing things. To make sure the updated policy is comprehensive, you could draft a new version of the policy and have members of your department review it and give their input before officially implementing it.

## **6. Address and prevent problems**

You can show initiative by recognizing and working to solve problems. By actively addressing issues, you can help improve your workplace and sharpen your problem-solving skills. When confronted with an issue, ask yourself questions to find the root cause of the problem:

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- How and when did the problem arise?
- Is this a reoccurring problem? How can we prevent this problem from reoccurring?
- Have we tried different ways to solve it in the past?
- What is the timeframe to solve the problem?

You can brainstorm independently or work collaboratively with colleagues to find the best solution to the problem.

## 7. Be prepared for meetings

Attending meetings with suggestions and questions prepared demonstrates that you've taken the initiative to put time and thought into the meeting's purpose. For example, if you present an idea at a meeting, such as implementing new software, you could do some research ahead of time on the following:

- **Cost/benefit analysis:** These measures how making a decision will benefit the company and compares it with the cost of implementing the decision in terms of finances and labor.
- **Risk analysis:** This identifies any issues that could adversely affect the company by making this decision. Analyzing these risks helps the company avoid or soften any adverse effects a decision may have on the company.
- **Impact analysis:** This identifies the overall effect that making the decision will have on the company.

## 8. Anticipate questions and prepare answers

You can show initiative in the way you react to situations by being prepared to answer questions. For example, if your team recently missed a deadline on a project, you may be asked to meet with your supervisor for a performance assessment. If you arrive at your meeting having identified where issues occurred and with actionable ways to avoid these issues in the future, you will show that you're willing to take the initiative to meet challenges and work to prevent them.

## 9. Set realistic standards

You can set achievable standards by taking initiative only on tasks that you have the time, energy and resources to contribute to. For example, you could help a colleague brainstorm how to improve a policy but allow that colleague to draft and implement the updated policy on their

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own. If you have an idea for improvement but don't have the time to lead the initiative, you could present your idea to your team to see if another team member can volunteer to work on it.

### 6.3. Problem-solving strategies

Problems come in all shapes and sizes from workplace conflict to budget cuts.

**Creative problem-solving** is one of the most in-demand skills in all roles and industries. It can boost an organization's human capital and give it a competitive edge.

Problem-solving strategies are ways of approaching problems that can help you look beyond the obvious answers and find the best solution to your problem. Let's take a look at a five-step problem-solving process and how to combine it with proven problem-solving strategies. This will give you the tools and skills to solve even your most complex problems.

#### **What is an example of problem-solving?**

Good problem-solving is an essential part of the decision-making process. To see what a problem-solving process might look like in real life, let's take a common problem for SaaS brands decreasing customer churn rates.

To solve this problem, the company must first identify it. In this case, the problem is that the churn rate is too high.

Next, they need to identify the root causes of the problem. This could be anything from their customer service experience to their email marketing campaigns. If there are several problems, they will need a separate problem-solving process for each one.

Let's say the problem is with email marketing they're not nurturing existing customers. Now that they've identified the problem, they can start using problem-solving strategies to look for solutions.

This might look like coming up with special offers, discounts, or bonuses for existing customers. They need to find ways to remind them to use their products and services while providing added value. This will encourage customers to keep paying their monthly subscriptions.

They might also want to add incentives, such as access to a premium service at no extra cost after 12 months of membership. They could publish blog posts that help their customers solve common problems and share them as an email newsletter.

The company should set targets and a time frame in which to achieve them. This will allow leaders to measure progress and identify which actions yield the best results.

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## Steps of Problem Solving

Perhaps you've got a problem you need to tackle. Or maybe you want to be prepared the next time one arises. Either way, it's a good idea to get familiar with the five steps of problem-solving.

Use this step-by-step problem-solving method with the strategies in the following section to find possible solutions to your problem.

### 1. Identify the problem

The first step is to know which problem you need to solve. Then, you need to find the root cause of the problem. The best course of action is to gather as much data as possible, speak to the people involved, and separate facts from opinions. Once this is done, formulate a statement that describes the problem. Use rational persuasion to make sure your team agrees.

### 2. Break the problem down

Identifying the problem allows you to see which steps need to be taken to solve it. First, break the problem down into achievable blocks. Then, use strategic planning to set a time frame in which to solve the problem and establish a timeline for the completion of each stage.

### 3. Generate potential solutions

At this stage, the aim isn't to evaluate possible solutions but to generate as many ideas as possible. Encourage your team to use creative thinking and be patient the best solution may not be the first or most obvious one. Use one or more of the different strategies in the following section to help come up with solutions the more creative, the better.

### 4. Evaluate the possible solutions

Once you've generated potential solutions, narrow them down to a shortlist. Then, evaluate the options on your shortlist.

There are usually many factors to consider. So when evaluating a solution, ask yourself the following questions:

- Will my team be on board with the proposition?
- Does the solution align with organizational goals?

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- Is the solution likely to achieve the desired outcomes?
- Is the solution realistic and possible with current resources and constraints?
- Will the solution solve the problem without causing additional unintended problems?

## 5. Implement and monitor the solutions

Once you've identified your solution and got buy-in from your team, it's time to implement it. But the work doesn't stop there. You need to monitor your solution to see whether it actually solves your problem. Request regular feedback from the team members involved and have a monitoring and evaluation plan in place to measure progress..

### 6.4 Monitoring own work

For one's promotion in any field of work or study, it is very much necessary that he/she keeps monitoring his/her work performance. Most of the companies will be ready to pay you any sum of amount if you can provide them "Quality" before "Quantity as Quality is what attract consumers the most and thus even the company heads, managers, chiefs and directors show interest in those people who do work with more quality.

#### How to Monitor Your Work Performance

##### 1. Keep a Track of Your Work Record: -

First of all, begins by keeping the track of your record. By keeping a track of record, you can actually monitor how far have you reached and how far you still need to reach. Just keep a view over all the tasks that you are subjected to accomplish and work with a perfect timetable.

##### 2. Make an Excel Record of Your Monthly Achievements: -

In target-based job works you can keep a track of your work performance by keeping a track of your work by the mean of an excel worksheet. Just organize each and every task with respect to its date, subjected payment that you are going to receive, test date, date of getting it accomplished and other such data related with it. It is always difficult to monitor your work when have a look at it separately, but you can easily track it if everything is depicted within a single excel worksheet.

##### 3. Find the Flaws

If excel sheet is not available, you can even make a list of tasks along with the date and time of getting them accomplished along with the problems that you faced while doing so on a piece of paper. Have a look at the flaws in your work and then work to eliminate them.

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#### 4. Seek Ways to Bring about the Desired Improvement

When you come to know about the flaws in your work, you can seek to go for the ways to bring about the desired improvement in it. Just notice and point out the weakness and eliminate it. If your work is low in terms of quality, just ask the company head to reduce the burden on your head and take responsibility for accomplishing any work only on the basis of your capabilities. You can increase the level of your work when you notice a desired improvement in yourself.

#### 6.5 Working effectively and cooperatively in team

##### What Is a Cooperative?

The International Co-Operative Alliance defines a cooperative, or co-op, as “an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise.” In other words, cooperatives are created by people who have a specific need and who are willing to work together to operate and organize a company that will meet that need.

##### How Does a Cooperative Work?

To an outsider, a cooperative might look very similar to any other type of corporation. For example, if you were to visit a grocery store cooperative, it is very likely that it will look like any other grocery store. There will be aisles full of food and checkout registers where people can make their purchases.

But if you were to look more closely, or take a peek behind the scenes, you’d be likely to notice that the food co-op operates slightly differently from a typical grocery store. For one thing, it’s likely that the people who are members of the cooperative, or part-owners of the co-op, are also working at the co-op, stocking the shelves and ringing customers up at the register.

For another thing, some cooperatives limit who can shop there or use their services. In some cases, only members of a cooperative can shop at it. Some cooperatives are open to all, but provide special incentives to members, such as a discount on products or services.

Why are people who are members of a food co-op willing to volunteer or donate their time to work at the co-op? In part because of the community focus of a cooperative and the values behind co-ops. Among those values are:

- Democracy
- Self-help

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- Self-responsibility
- Equity
- Equality
- Solidarity

People who join cooperatives or who are among the founding members of a co-op often have the same shared values, meaning they are willing to work together towards a common goal. One of those goals is to create a better world by working together and by shifting the focus of the business to place people over profit to build a more inclusive economy.

### **Co-op Ownership and Control**

The people who benefit from the products or services of a cooperative business own the cooperative business. In the case of a grocery co-op, the people who shop at the store are owner-members. In the case of co-op housing, the people who live in a particular building are members of the cooperative that owns the building.

Just as the stockholders or shareholders of a business have a say in the ownership and operations of a company, the member-owners of a co-op have a say in how the cooperative operates. The crucial difference is that in the case of other types of corporations, the size of their ownership stake affects how much of a say or how much control an owner has over the company.

A shareholder who owns 50% of a corporation will have more votes or more control over the operation of the company compared to a shareholder who owns 2% of a corporation. That’s not the case with a co-op. As equity and equality are among the founding principles of a cooperative, each member-owner of a co-op gets one vote. The opinion of one co-op member does not have more weight than the opinion of another co-op member.

Cooperatives often elect a board of directors. The responsibilities of the co-op board include ensuring that the cooperative is working towards achieving its mission, setting up operational policies for the co-op and hiring any outside managers or other employees.

Members of a co-op’s board are members of the cooperative itself. They are typically elected to the board by a member vote. Some board members also serve as officers, such as president, vice president, secretary and treasurer. Board officers have additional responsibilities and duties, which members can find in the cooperative’s by-laws.

## **7 Cooperative Principles**

The International Co-Operative Alliance adopted seven cooperative principles in 1995. These guiding values are based on a set of principles known as the Rochdale Principles, which were

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first created in 1844. The cooperative principles create guidelines for co-ops to follow and allow co-ops to put their values into action.

1. **Voluntary membership:** Any person who is willing to accept the responsibilities of co-op membership and who wishes to use the services of a cooperative is welcome to become a member.
2. **Democratic member control:** Co-ops are controlled by their members. Members have control over setting policies for the co-op and making decisions for the cooperative.
3. **Member economic participation:** Members contribute to the capital of the co-op democratically and equitably. Most of the capital of a co-op remains the property of the co-op and isn't redistributed to members.
4. **Autonomy and independence:** Co-ops are meant to be autonomous and democratically controlled, meaning they aren't subject to control by outside organizations.
5. **Education, training and information:** A cooperative provides education and training to members and board members to allow them to contribute to the development of the co-op. Cooperatives also seek to inform and educate the public about the mission and operation of a co-op.
6. **Cooperation among cooperatives:** Co-ops will often work together, creating regional, national and international structures that help to improve the community and create a better world.
7. **Concern for community:** The policies approved by the members of a cooperative should help to develop the community around the co-op in a sustainable way.

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### Self-check-6

**Test-I:** Choose the best answer (each question contains 4point)

1. Which one of the following is not Cooperative Principles?
  - A. Solve problem
  - B. Voluntary membership
  - C. Democratic member control
  - D. Member economic participation
  
2. Which one of the following is ways to Take Initiative at Work
  - A. ability to work in team and solve problems
  - B. Using technology
  - C. Solve problem
  - D. Be proactive
  
3. What are the steps to problem-solving?
  - A. Democracy
  - B. Self-help
  - C. Self-responsibility
  - D. Generate potential solutions
  
3. How to Monitor Your Work Performance
  - A. Keep a Track of Your Work Record
  - B. solve problems
  - C. learning skills plan
  - D. development activities
  
4. What are the steps to problem-solving?
  - A. Identify the problem
  - B. Keep a Track of Your Work Record
  - C. Make an Excel Record of Your Monthly Achievements

**Test II: Short answer writing**

**Direction:** Give short answer to the following questions. Time allotted for each item is 2 minutes and each question carry 4 point.

1. Identify the problem
2. Break the problem down
3. Generate potential solutions
4. Evaluate the possible solutions
5. Implement and monitor the solutions

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