Washing Machine Operator

Participant Handbook

AMHSSC

NCVET
कौशल गुणवत्ता प्रगति

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
RE IMAGINE FUTURE

APPAREL MADE-UPS HOME FURNISHING SECTOR SKILL COUNCIL

Participant Handbook

Sector
Apparel / Made-Up's and Home Furnishing

Sub-Sector
Apparel / Made-Up's / Home Furnishing

Occupation
Washing Machine Operator

Reference ID: **AMH/Q1810, Version 2.0**
NSQF level: 3

Washing Machine Operator

https://youtu.be/vYBG4bJtLKI
Scan QR code to access e-book

Second Edition

ISBN: 978-93-86620-59-0

Printed in India

Copyright ©

Apparel Made-ups & Home Furnishing Sector Skill Council

Flat No. A-312 to A-323, 3rd Floor, Somdatt Chamber-1,

Bhikaji Cama Place, Africa Avenue, New Delhi-110066

E-mail: jdop@sscamh.com

Website: www.sscamh.com

Disclaimer

"Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission."

Shri Narendra Modi
Prime Minister of India


Skill India
APPAREL MADE-UPS & HOME FURNISHING SECTOR SKILL COUNCIL
N·S·D·C National Skill Development Corporation
Transforming the skill landscape
www.nsdcindia.org
Certificate
COMPLIANCE TO
QUALIFICATION PACK - NATIONAL OCCUPATIONAL STANDARDS
is hereby issued by the
APPAREL, MADE-UPS & HOME FURNISHING SECTOR SKILL COUNCIL
for the
SKILLING CONTENT : PARTICIPANT HANDBOOK
Complying to National Occupational Standards of
Job Role/Qualification Pack: Washing Machine Operator QP. No. AMH/Q1810 NSQL LEVEL 3
Date of Issuance: 30 September 2021
Valid up to: 30 September 2024
*Valid up to the next review date of the Qualification pack
Valid up to date mentioned above (whichever is earlier)
Chief Executive Officer
APPAREL MADE-UPS & HOME FURNISHING SECTOR SKILL COUNCIL

Acknowledgements

We are thankful to Methods Apparel Consultancy India Pvt Ltd and to all organisations and individuals who have helped us prepare this Participant Manual.

We are especially thankful to Shahi Exports Pvt Ltd, Orient Fashions Exports (India) Pvt Ltd, Matrix Clothing Pvt Ltd, Richa Global Exports Pvt Ltd, Modelama Exports Pvt Ltd, Numero Uno Clothing Ltd, FCR Kiran Modes and M/S Khorania Brothers for their kind support in the development of this manual.

About this Book

This Participant Handbook is designed to enable training for the specific Qualification Pack(QP). Each National Occupational (NOS) is covered across Unit/s.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS.

- AMH/N0102: Maintain work area, tools and machines
- AMH/N0104: Comply with industry, regulatory and organizational requirements and Greening of Job roles
- AMH/N1810: Plan and prepare for process of washing as per job card
- AMH/N1811: Carrying out the washing process
- AMH/N1812: Maintain health, safety and security in the washing department & Gender Sensitivity Requirements

The symbols used in this book are described below:

Symbols Used

Table of Content

Table of Content

1. Introduction and Orientation

Unit 1.1 - Introduction to Apparel Sector

Unit 1.2 - Roles and Responsibilities of Washing Machine Operator

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Familiarise with Apparel industry.
2. Describe the home furnishing and made-ups sub sectors.
3. Identify the roles and responsibilities of a Washing Machine Operator.
4. Familiarise with the personal attributes of Washing Machine Operator.

UNIT 1.1: Introduction Apparel Sector

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with apparel industry.
2. Describe the home furnishing and made-ups sub sectors.

1.1.2 Apparel Sector – Industry Overview

The apparel and textile industry is one of the most booming industries. Apart from providing one of the basic necessities of life, it also plays an important role through its contribution to industrial output, employment generation, and the export earnings of the country. With Indian apparel and textile being among the world's largest producers, the country is also the 5th largest exporter of apparel and textile across the globe with US$ 36.4 billion. (source: Annual T&A industry report 2021 by Wazir Advisors)

The textile industry is one of the oldest business options in India since the ancient age. Different types of textile fibers are produced in India, among which cotton, jute, silk, and wool are the major ones. Both skilled laborers and unskilled officials are needed to run this business smoothly. Thus, the textile and apparel industry serves as the platform offering a huge number of employment opportunities to eligible people in India. A brief on complete supply chain for apparel industry is shown as below.

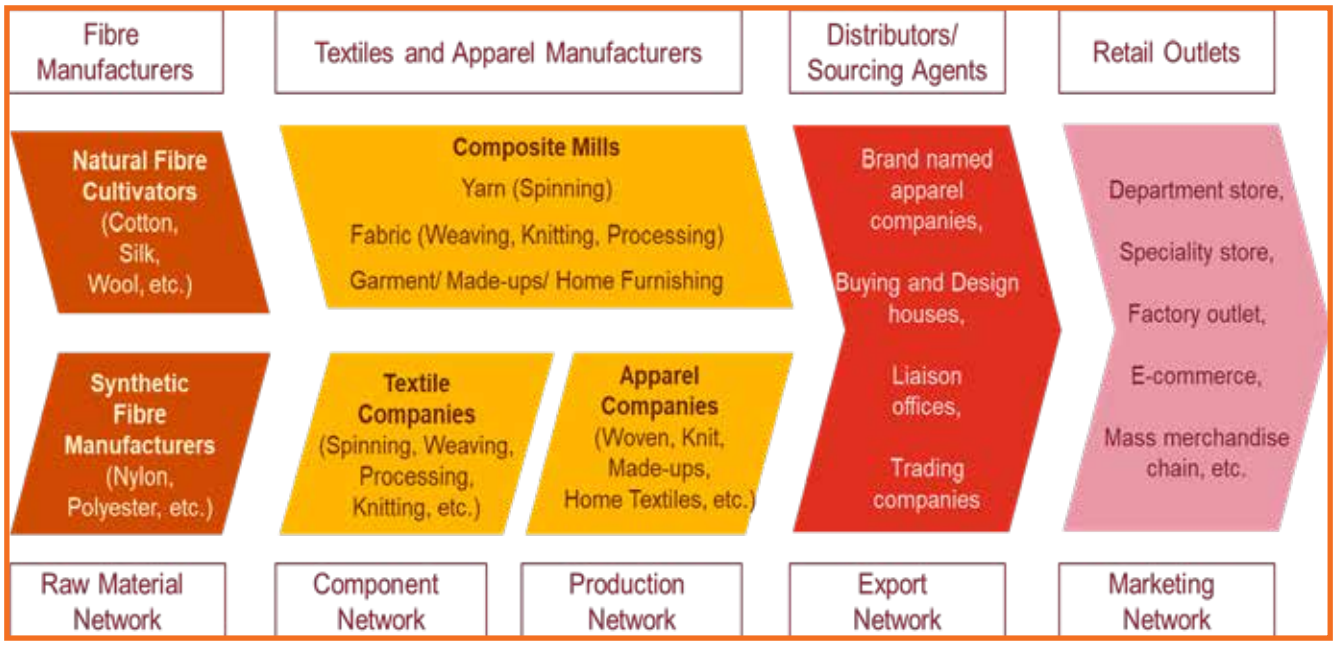


Fig.1.1.1: Apparel production process

The apparel and textile industry contributes 5 percent to the country's GDP from the domestic sector, whereas 7 percent is contributed from the industrial output in value terms and the export earnings of the country acquire a contribution of 12 percent from the apparel and textile industry.

Exports of AMH products stood at US$ 21.5 billion in the year 2019-20 and have grown at a CAGR of 3 per cent since 2009-10. Top exported Apparel and Home Textiles commodities include T-shirts, kitchen & toilet linen, bed linen, men's shirt, women's top. India's domestic AMH market is also expanding rapidly, and domestic consumption stood at US$ 81 billion growing at a CAGR of 10 percent, between 2005-06 to 2018-19.

The Indian textile sub-sector has traditionally been contributing significantly to the economy and manpower as well as to the structural changes in the manufacturing sector. Several factors that would contribute to the growth would include:

- Rising income levels are expected to increase the demand for home textiles and garments from domestic Consumers.
- Free trade agreements provide India a comparative advantage in the export segment as compared to its competitors – China, Bangladesh and Pakistan – as they create opportunities for manufacturers to supply to potential markets in East Asia.
- Low production cost continues to be an advantage for the sector and, consequently, demand from existing foreign markets continues to increase.
- Structural changes in the sector, with a shift from vertically disintegrated to integrated large firms, with automated machines for yarn and fabric production.
- Increased spending on research and development to enter the specialized fabrics and technical textiles sector.
- Favorable policy environment to support domestic and foreign investments and the implementation of schemes to enhance the production capacity and improve technology.

Ready Made Garments

The ready-made garments segment comprises men's, women's and kid's clothing, which may be used for either private (home/office wear) or commercial (uniforms for school, waiters and flight crew) purposes. The ready-made garments section has grown rapidly in the last few years. Both exports and domestic demands shall drive sector growth in future.

- Men's wear is the biggest segment in the ready-made garment segment, comprising about 43 percent of its share in the total revenue generated. This is followed by women's wear, with a share of 38 percent; 10 percent share of boys wear and 9 percent for girls wear in the total revenue generated by the ready-made garment segment.
- Changing lifestyles and consumption patterns are expected to drive the sector's supply of casual wear with an 11 percent growth, which would drive demand for workforce with specialized skills in western formals design, blended fabrics and increased application work on clothes.

Fig.1.1.2: Apparel production department

1.1.3 Made-ups and Home Furnishings

The made-ups sub-sector is growing at a steadily increasing pace in the country. The wide variety of products that come under this sub-sector are not only include necessities but also functional and luxury products. Made- ups sub-sector is divided into three (3) broad categories:

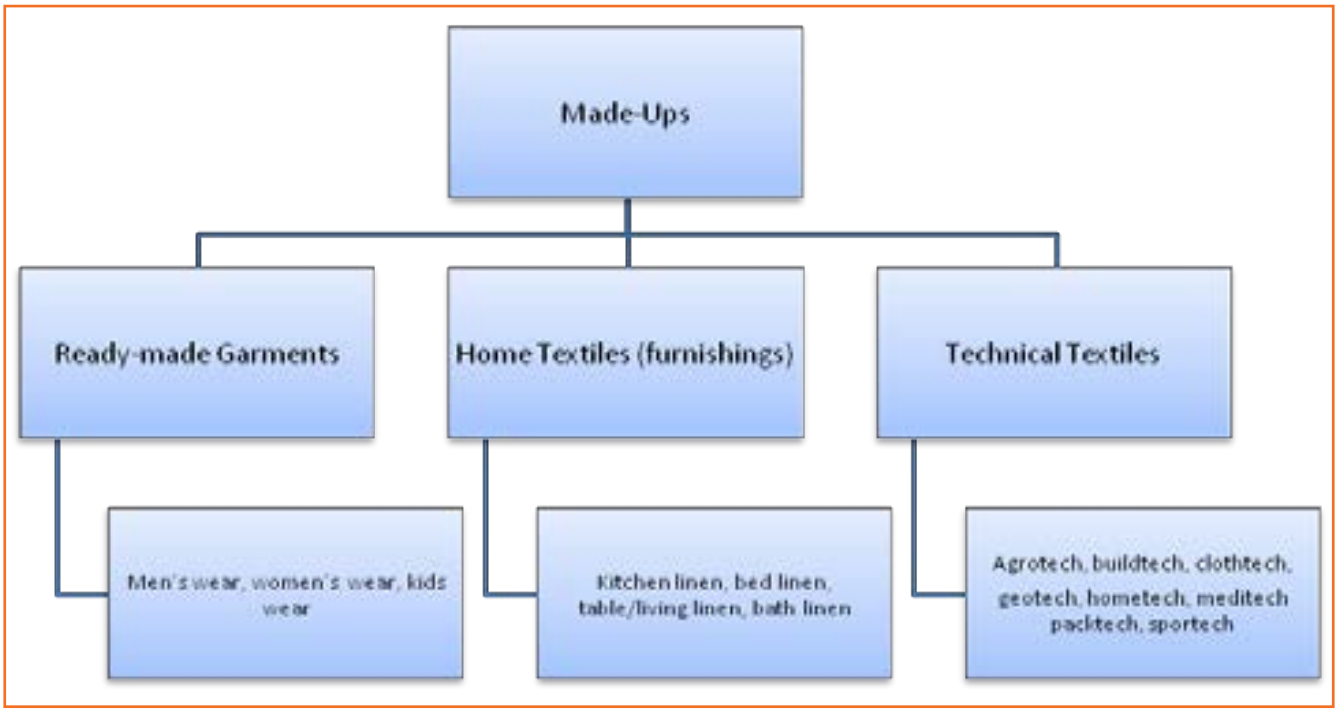


Fig.1.1.3: Made-ups and Home Furnishing Sub-sector

Indian is among one of the biggest exporters in Apparel and Made-ups industry. In Home Textiles India is second only to China in global exports, whereas in apparels, India is among the top 10. , India is fast becoming one of the leading global players in the Home Furnishings/ Textile. Home Furnishings industry offers wide varieties of products like bedspreads, furnishing fabrics, curtains, rugs, cushion covers etc.

The Indian Home Furnishing industry provides a unique blend of modern technology and ethnic techniques to bring out products that are one of the best in the world. The increase in the spending power of the Indian working class is also expected to contribute in the growth of domestic consumption of made-ups and home furnishings industry.

Fig.1.1.4: Home Furnishing

With increased demand and completion from countries like China, the demand of skilled workforce/kaarigars in the Home Furnishings industry is bound to increase in coming years

Size of Indian Textile and Apparel Industry

In India, the Apparel industry is spread across the country. However, the distribution of the clusters depends on the availability of raw material as well as the manufacturing. Cotton based units can be seen in all parts of the country, while the synthetic and woolen based industries are mainly concentrated in Maharashtra, Gujarat, Punjab, Jammu & Kashmir, Haryana, Madhya Pradesh and Uttar Pradesh. The silk-based industry finds concentration in Andhra Pradesh, Karnataka and Tamil Nadu while, jute clusters are largely located in Bihar and West Bengal.

Most of the apparel exporters (approx. 95%) are based out of Delhi NCR, Tamil Nadu Punjab, Rajasthan, Maharashtra and West Bengal. Rest of the India accounts for remaining 5% of the apparel exporters.

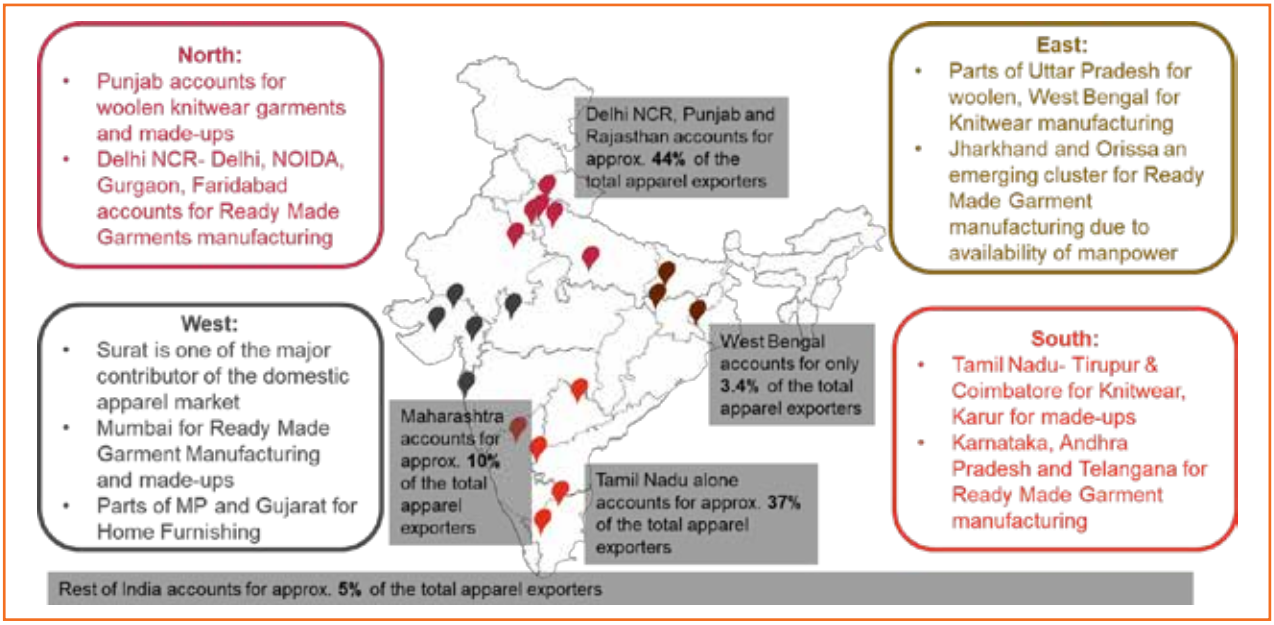


Fig.1.1.5: Major Apparel, Made-ups and Home Furnishing Clusters in India

1.1.4 Skill Development Policy

Indian government runs more than seventy skill development schemes at central, state and district level. The government has launched the Skill India flagship program to empower youth of the country by imparting employable skills to them. Under this initiative, the government has set up Ministry of Skill Development and Entrepreneurship (MSDE) to bring all the skill initiatives of the government under one umbrella and lead skill development ecosystem in the country. The ministry also launched a comprehensive Skill Development Policy in 2015 in which, detailed skill set requirement, courses offered, and roles and responsibilities of different stakeholders were defined. Further, sector wise skill gap analysis was also undertaken to understand sector specific skill requirement.

Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and Deen Dayal Upadhyaya Grameen Kaushalya Yojana (DDU-GKY) are the flagship schemes which offer a variety of courses in the AMH sector. Among other skill development programmes, Integrated Skill Development Scheme (ISDS) was the main program run by the Ministry of Textiles, Government of India, introduced in XIIth Five Year Plan (FY 12-17).

The scheme had a target to train 1.5 million people for the T&A industry. As continuation of the scheme, the ministry has launched Scheme for Capacity Building in Textile Sector (SCBTS) also known as SAMARTH in 2018 with a target to train 1 million people in the sector.

ISDS has helped the industry by supplying skilled workforce, which, in turn, has helped the manufacturers in improving productivity and quality. Overall, it has helped in reducing cost, wastage and improving competitiveness that resulted in better business performances.

1.1.5 Employment Scenario in the Sector

Indian Garment Industry is closely connected to the fashion industry and grows hand in hand. Apparel Made-up & Home furnishing (AMH) is one of the largest employments generating sector in India, constituting about 60 per cent share of the total Textile and Apparel (T&A) exportsThe Indian textile sub-sector has traditionally been contributing significantly to the economy and manpower as well as to the structural changes in the manufacturing sector .As per the latest round of Periodic Labor Force Survey (2018-19), the total workforce in India is estimated to be about 479 million. The share of labor working in the manufacturing sector was around

12.2 per cent (about 59 Million). Direct employment in the AMH sector primarily comes under manufacturing and the service sectors. The AMH sector employs about 35.8 million labour out of which 47% are engaged directly through the core manufacturing and trade of AMH product and 53% are engages indirectly through the ancillary sector activities.

India is among the very few countries which have presence across the entire supply chain, from natural and synthetic fibers right up to finished goods manufacturing. It has presence in organised mill sector as well as decentralised sectors like handloom, power loom, silk, etc.

Incremental human resource requirement in core AMH sector, including manufacturing and trade is estimated to be about 35 Lakh for upcoming five years period between 2021-22 and 2025-26. Of the total incremental human resource demand, 89 per cent demand is projected to be in manufacturing of AMH products and 11 per cent demand is projected to be in trade related activity. Incremental labour demand in ancillary sector is estimated to be about 52 Lakh. Thus, the total incremental labour demand in AMH sector is about 87 Lakh.

Total incremental supply at all skill level, during the 2021-25 period, is projected to be of 18.4 Lakh. With the incremental demand of 31 Lakh, the skill gap in AMH - manufacturing is projected to be of 12.6 Lakh.

UNIT 1.2: Roles and Responsibilities of WMO

Unit Objectives

At the end of this unit, participants will be able to:

1. Identify and the roles and responsibilities of an Washing Machine Operator.
2. Explain the attributes of washing machine operator.

1.2.1. Washing Machine Operator – Job and Attributes

Washing Machine Operator operates washing machine to execute running of various washing programmes to achieve desired characteristics from as simple as cleaning to finishing attributes of improved feel, drape, luster, biological resistance etc.

Brief Job Description

Washing Machine Operator is responsible to perform various types of washings for apparel and garments, made ups and home furnishing articles. The washings are intended to achieve desired finish reflected in terms of improved performance, cleanliness, luster, feel, drape, softness with combinations of time, temperature, process conditions and chemical formulations specific to product class.

Personal Attributes

Washing Machine Operator should have good eyesight, motor skills and immune from defects of colour blindness. He/she should also have good interpersonal skills and keen on learnings.

1.2.2. Roles and Responsibilities of a Washing Machine Operator

As a Steam Washing Machine Operator your role will include key responsibilities such as:

- Load articles into washers or dry-cleaning machines, or direct other workers to perform loading.
  - » Apply water or solutions to fabrics or apparel.
  - » Direct operational or production activities.
- Start washers, dry cleaners, driers, or extractors, and turn valves or levers to regulate machine processes and the volume of soap, detergent, water, bleach, starch, and other additives.
  - » Operate garment treatment equipment.
  - » Apply water or solutions to fabrics or apparel.
- Apply bleaching powders to spots and spray them with steam to remove stains from fabrics that do not respond to other cleaning solvents.
  - » Apply water or solutions to fabrics or apparel.
- Operate extractors and driers, or direct their operation.
  - » Operate garment treatment equipment.

  - » Direct operational or production activities.
- Remove items from washers or dry-cleaning machines, or direct other workers to do so.
  - » Remove products or workpieces from production equipment.
  - » Direct operational or production activities.
- Sort and count articles removed from dryers, and fold, wrap, or hang them.
  - » Count finished products or workpieces.
  - » Sort materials or products for processing, storing, shipping, or grading.
- Clean machine filters, and lubricate equipment.
  - » Clean production equipment.
  - » Lubricate production equipment.
- Examine and sort into lots articles to be cleaned, according to color, fabric, dirt content, and cleaning technique required.
  - » Inspect garments for defects, damage, or stains.
  - » Sort materials or products for processing, storing, shipping, or grading.
- Spray steam, water, or air over spots to flush out chemicals, dry material, raise naps, or brighten colors.
  - » Apply water or solutions to fabrics or apparel.
- Determine spotting procedures and proper solvents, based on fabric and stain types.
- Receive and mark articles for laundry or dry cleaning with identifying code numbers or names, using hand or machine markers.
  - » Mark products, workpieces, or equipment with identifying information.
- Pre-soak, sterilize, scrub, spot-clean, and dry contaminated or stained articles, using neutralizer solutions and portable machines.
  - » Apply water or solutions to fabrics or apparel.
- Mix bleaching agents with hot water in vats, and soak material until it is bleached.
  - » Mix substances to create chemical solutions.
- Apply chemicals to neutralize the effects of solvents.
  - » Apply water or solutions to fabrics or apparel.
- Sprinkle chemical solvents over stains, and pat areas with brushes or sponges to remove stains.
  - » Apply water or solutions to fabrics or apparel.
- Mix and add detergents, dyes, bleaches, starches, and other solutions and chemicals to clean, color, dry, or stiffen articles.
  - » Mix substances to create chemical solutions.
- Match sample colors, applying knowledge of bleaching agent and dye properties, and types, construction, conditions, and colors of articles.
  - » Compare physical characteristics of materials or products to specifications or standards.
- Inspect soiled articles to determine sources of stains, to locate color imperfections, and to identify items requiring special treatment.

» Inspect garments for defects, damage, or stains.

- Operate dry-cleaning machines to clean soiled articles.
  - » Operate garment treatment equipment.
- Operate machines that comb, dry and polish furs, clean, sterilize and fluff feathers and blankets, or roll and package towels.
  - » Operate garment treatment equipment.
- Iron or press articles, fabrics, and furs, using hand irons or pressing machines.
  - » Smooth garments with irons, presses, or steamers.
- Hang curtains, drapes, blankets, pants, and other garments on stretch frames to dry.
  - » Mount materials or workpieces onto production equipment.
- Clean fabrics, using vacuums or air hoses.
  - » Apply water or solutions to fabrics or apparel.
- Test fabrics in inconspicuous places to determine whether solvents will damage dyes or fabrics.
- Rinse articles in water and acetic acid solutions to remove excess dye and to fix colors.
  - » Apply water or solutions to fabrics or apparel.
- Start pumps to operate distilling systems that drain and reclaim dry cleaning solvents.
  - » Operate garment treatment equipment.
- Identify articles' fabrics and original dyes by sight and touch, or by testing samples with fire or chemical reagents.
  - » Test chemical or physical characteristics of materials or products.
- Immerse articles in bleaching baths to strip colors.
  - » Immerse objects or workpieces in cleaning or coating solutions.
- Spread soiled articles on work tables, and position stained portions over vacuum heads or on marble slabs.
  - » Mount materials or workpieces onto production equipment.
- Mend and sew articles, using hand stitching, adhesive patches, or sewing machines.
  - » Sew clothing or other articles.
- Repair textiles or apparel.
  - » Operate sewing equipment.
- Dye articles to change or restore their colors, using knowledge of textile compositions and the properties and effects of bleaches and dyes.
  - » Prepare fabrics or materials for processing or production.
- Wash, dry-clean, or glaze delicate articles or fur garment linings by hand, using mild detergents or dry cleaning solutions.
  - » Apply water or solutions to fabrics or apparel.
  - » Apply protective or decorative finishes to workpieces or products.

Resources

Scan the QR code or click the link to access the videos or e-book.

Description	QR Code
Apparel industry in India	https://youtu.be/tN5oLGSjepQ
Garments Washing Machine in Apparel Industry	https://youtu.be/vYBG4bJtLKI

Exercise

1. India is _____ largest exporter of Apparel and Textile
   a) 2nd
   b) 3rd
   c) 4th
   d) 5th
2. The apparel and textile industry contributes ____ percent to the country's GDP from domestic sector
   a) 5
   b) 6
   c) 7
   d) 10
3. Biggest segment in the ready-made garment is
   a) Children's Wear
   b) Women's Wear
   c) Men's Wear
   d) Sport's Wear
4. Which state accounts for alone 37 % of total apparel exporters?
   a) Delhi NCR
   b) Punjab
   c) Rajasthan
   d) Tamil Nadu

5. Which of these items comes under category of Home Furnishing and Made-ups?
   a) Bedspreads
   b) Curtains
   c) Cushion covers
   d) All of the above
6. What is the full form of PMKVY?
   a) Pradhan Mantri Kushal Vikas Yogna
   b) Pradhan Mantri Kaushal Vikas Yogna
   c) Pradhan Mantri Krishi Vikas Yogna
   d) None of the above
7. In which year SAMARTH Scheme launched?
   a) 2015
   b) 2016
   c) 2018
   d) 2021
8. India is _____ largest exporter of Apparel and Textile
   a) 2nd
   b) 3rd
   c) 4th
   d) 5th
9. What are the key responsibilities of a Washing Machine Operator:
   a) Operate extractors and driers, or direct their operation
   b) Load articles into washers or dry-cleaning machines, or direct other workers to perform loading.
   c) Pressing and ironing the washed garments
   d) Applying bleaching powder to spots and spray them with steam.
10. A Washing Machine Operator's key responsibilities include:
    a) Follow the policies and procedures of production unit
    b) Work with conciseness in order to give the best results and good quality of work and also look after other pressing section
    c) Use proper care of pressing machines being used
    d) All of the above
11. What of the following is personal attribute of a Washing Machine Operator?
    a) Good Eyesight
    b) Fine Motor Skills
    c) Immune from Colour Blindness
    d) All of the above
12. What is the motive of Washing?
    a) To achieve desired finish
    b) To achieve Cleanliness
    c) To achieve proper Drape
    d) All of the above

2. Plan and Prepare for Process of Washing as Per Job Card

Unit 2.1 - Garment Washing Methods, Trims and Accessories

Unit 2.2 - Washing Machine

Unit 2.3 - Chemicals used in Washing

Unit 2.4 - Understanding the Parameters Which Affect Washing

Unit 2.5 - Garments and Its Parts

Unit 2.6 - Common Defects in Garments

AMH/N1810

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Explain the term garment washing.
2. Identify the different methods of garment washing.
3. Recognise different tools and accessories used in washing.
4. Familiarise with different types of washing machines.
5. Operate an industrial washing machine.
6. Familiarise with the chemicals that are used in washing fabric.
7. Use chemicals in proper volume to wash fabric.
8. Familiarise with the parameters affecting washing.
9. Understand different part of garments.
10. Recognize types of fabrics and yarns.
11. Understand defects.
12. Understand different types of defects.
13. Identify different types of faults.
14. Familiarise with various garment sizes.
15. Identify the various terms used in Garment charts.

UNIT 2.1: Garment Washing Methods, Trims and Accessories

Unit Objectives

At the end of this unit, participants will be able to:

1. Explain the term garment washing.
2. Identify the different methods of garment washing.
3. Recognise different tools and accessories used in washing.

2.1.1 Garment Washing

Washing of garments normally refers to cleaning soiled garments with detergent and water, but garment washing in the apparel industry is a technology which enhances the appearance, comfortability and design of the garment as per the buyer's requirement. Each wash produces different appearance on the fabrics surface.

2.1.2 Different Methods of Garment Washing

There are two different methods of garment washing:

1. Wet process/ Chemical process
2. Dry process/ Mechanical process

Wet process/ Chemical process

Wet process is mainly done by using different types of chemicals. It is the main treatment used in garment washing. The different types of wet process used are

- **Normal wash:** Normal washing is the regular method of washing garments to remove starch and dirt present in the garment. Washing effect could be controlled by changing the washing temperature, washing time, quantity of detergent used etc. It is the most cost effective method of washing.
- **Stone wash:** The heavy fabric garments like jeans and denim can undergo stone wash. These are washed by using the stone wash technique to create different types of irregular color fading effect on the garment. Stone wash also controls shrinkage.

Fig.2.1.1: Wet Process

- **Acid wash:** The acid wash technique is used on garments such as jeans, denim, canvas and thick twill. Acid wash produces irregular pattern fading on the fabric. Pumice stone is used in this process.
- **Enzyme wash:** Heavy fabrics like jeans and denim can also be enzyme washed. This process uses cellulose enzyme is used which protects the hairy cotton fibers of the fabric surface and also removes colour. Irregular colour fading effect is produced by using stones during the process.
- **Pigment wash:** Pigment washing process is very similar to normal washing process but used on garments which are pigment dyed or pigment printed fabric. Fading effect is produced in the garments.

- **Bleach wash:** Bleach wash produces partial colour fading effect. In case of bleach washing, the fabrics is normally dyed with direct or reactive dye.
- **Caustic wash :** Usually printing on fabric is done after pre-treatment such as scouring, desizing and bleaching. On the other hand, in case of caustic wash, printing is done on the fabric without pre-treatment of the fabric. Caustic wash washes out around 20% - 30% pigment which results in different colour fading effect on the garment.

Dry process/ Mechanical process

Is mainly done by hand or mechanically. Popularly used different types of Dry process are:

- **Whisker:** Whisker is done with a sharp edge emery paper rolled onto fine wood or metal. It is done first in the dry process.
- **Tacking:** Is done to produce a faded effect on the garment. In this process, Garments are folded three or four times and are tacked through the folds, using a swift tag machine. Then the garments are washed and dried. The inner of the fold is dark due to less exposure of rubbing and chemicals.
- **Hand scraping:** It is a process of scrapping out colour from the surface of denim. Different tools are used to get the desired worn out and used look on denims.
- **PP spray and PP sponging:** P.P means potassium per manganate. P.P is sprayed onto the desired areas of garments which oxidizes indigo colour. This process can be done before or after garments washing process. First P.P is spr ayed and then it is neutralized to get the final effect.

Fig.2.1.2: Dry Process

- **Sand blasting:** The abrasive tools made of aluminium oxide are suitable for sand blasting for Denim. Sand blasting is performed combined with Normal / Rinse wash, Enzyme wash, Stone Enzyme wash, Bleach wash and Stone wash. It produces a fading effect on denims.

2.1.3 Tools and Equipment

Fig.2.1.3: Washing Chemicals

Fig.2.1.4: Stain Swatches

Fig.2.1.5: Hanger stand

Fig.2.1.6: Hanging Rope

Fig.2.1.7: Steam Generator

Fig.2.1.8: Small Brush

Fig.2.1.9: Labels

Fig.2.1.10: Labels

2.1.4 Process Flow Chart of Garments Washing

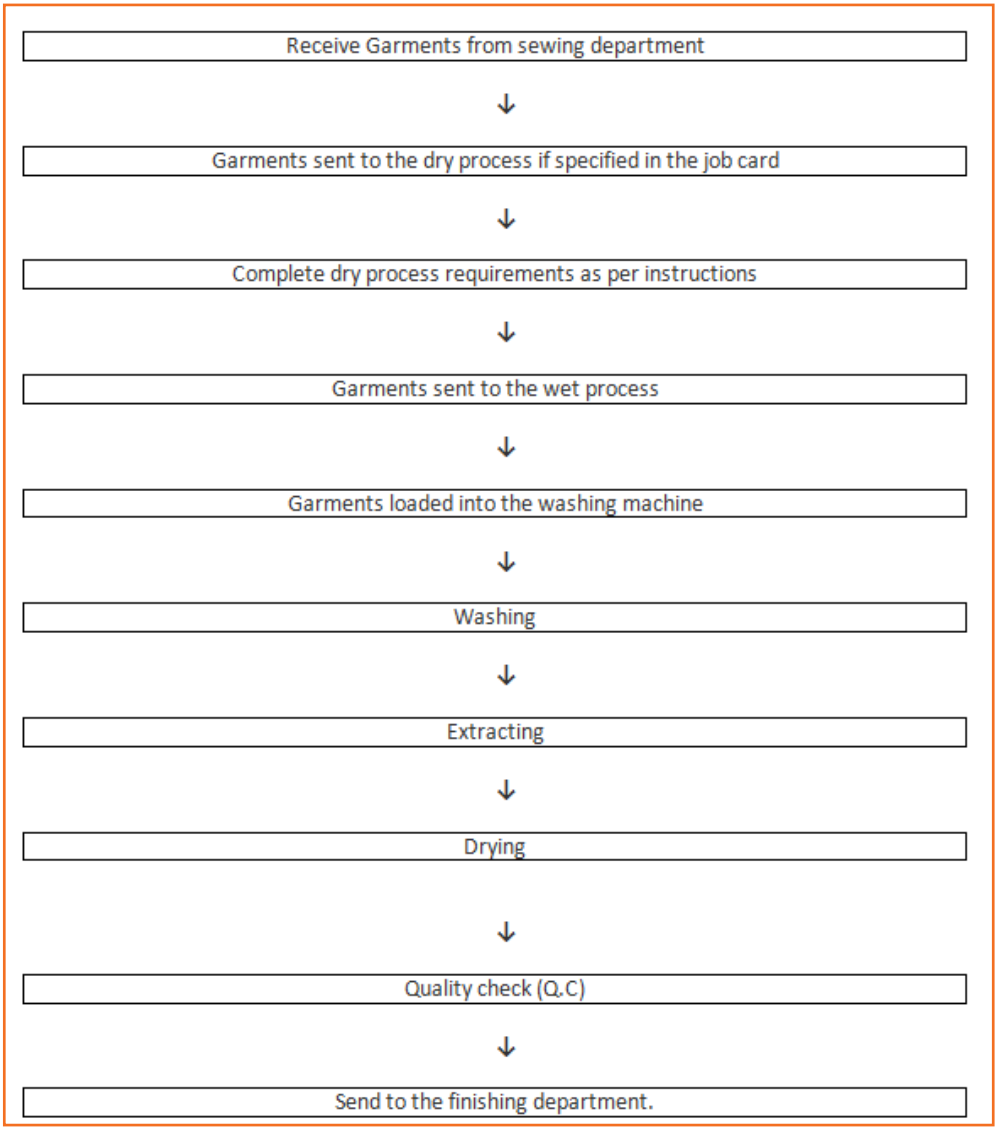


Fig.2.1.11: Process Flow Chart of Garments Washing

UNIT 2.2: Washing Machine

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with different types of washing machines.
2. Operate an industrial washing machine.

2.2.1 Introduction

The Washing machine which is also called a clothes washer, is a machine used to wash different types of garments without using any physical efforts. Washing machine eliminates the different process of washing clothes which requires human involvement such as, rubbing the clothes to remove stains and squeezing the clothes to remove water and in a garment washing plant, special kind of washing machines are also used to enhance the appearance and design of the garment.

In a garment washing plant, there are machines used for wet process of garments and there are also machines used in dry process.

2.2.2 Different Types of Washing Machine

Front loading washing machine

- The front loading washing machine facilitates easy loading and unloading of garments through a large glass door which is located in the front of the machine.
- The inner and outer drum is made of stainless steel.
- It is fully automatic.
- It is popularly used for laundry wash and stone wash.
- It uses separate motors for wash and extract.

Fig.2.2.1: Front loading washing machine

Fig.2.2.2: Top Loading washing machine

Top Loading washing machine

- The garments are loaded and unloaded from the top of the washing machine where the door is located.
- The top loading washing machine is more cost effective as they wash larger loads and bulkier garments.
- You can also pre-soak the garments in the top loader and it is fully automatic.

Side loading washing machine

- Performs all Type of wash with detergent, acid, bleaching or any chemical wash and is mainly used for Denim/stone washing and also for garment bleaching and dying.
- Side loading washing machine is used for washing bulk garments.
- It is electrically controlled and steam or thermal fluid heated.

Fig.2.2.3: Side loading washing machine

Fig.2.2.4: Stone washing machine

Stone washing machine

- Stone washing machine affectively removes stains and dust from the garments.
- It is also used to create the old or faded looking effect on the garments.

Hydro extractor machine

- Hydro extractor machine helps remove any excess water in the garments after it has been washed.
- The internal drum rotates at high speed throwing out the excess water contained in the garment.

Fig.2.2.5: Hydro extractor machine

2.2.3 Operating a Basic Industrial Washing Machine

A washing machine operator should know how to operate a basic washing machine based on capacity, suitability of the garment type, washing cycle, etc. Below mentioned are the steps involved in loading and unloading of garments into a basic industrial washing machine:

- **Step 1 – Checking the Machine:** An operator checks the machine for cleaniness and if machine is empty.
- **Step 1 – Sorting the clothes:** Before loading the clothes into the washing machine, the clothes are sorted out according to the fabric and colour as per instructions on the job card. Ensure that the garment is checked for any stains, defects or objects that could damage the garment or machine during washing.
- **Step 2- Loading the garments:** Load the clothes into the washing machine, ensuring that the weight of the garments does not exceed the capacity of the washing machine. Overloading the washing machine will damage the machine and the garments will not be cleaned properly. Washing machines can normally be loaded up to 80% of its capacity.

- **Step 3- Closing the door:** Before the washing machine is switched on, it is necessary to ensure that the door of the washing machine is closed properly. Most washing machines cannot be turned on until its door is closed.
- **Step 4- Selecting the right washing programme:** Different types of fabric have different temperature compatibility. The right washing programme has to be selected based on the fabric compatibility. The programmes are mentioned on the controls of the washing machine.
- **Step 5- Using detergents and other chemicals:** The detergents and chemicals (Bleach, softener etc.) have to be poured into the provided trays of the washing machine as per the specifications given in the job card.
- **Step 6- Run wash cycle:** The START button on the washing machine is pushed to run the wash cycle. The complete wash cycle will ensure that the garments are clean and ready for the next process.
- **Step 7- Unload the garments:** The garments have to be unloaded carefully and checked for any stains or damage before it is sent to the next process.

2.2.4 External and Internal Parts of a Washing Machine

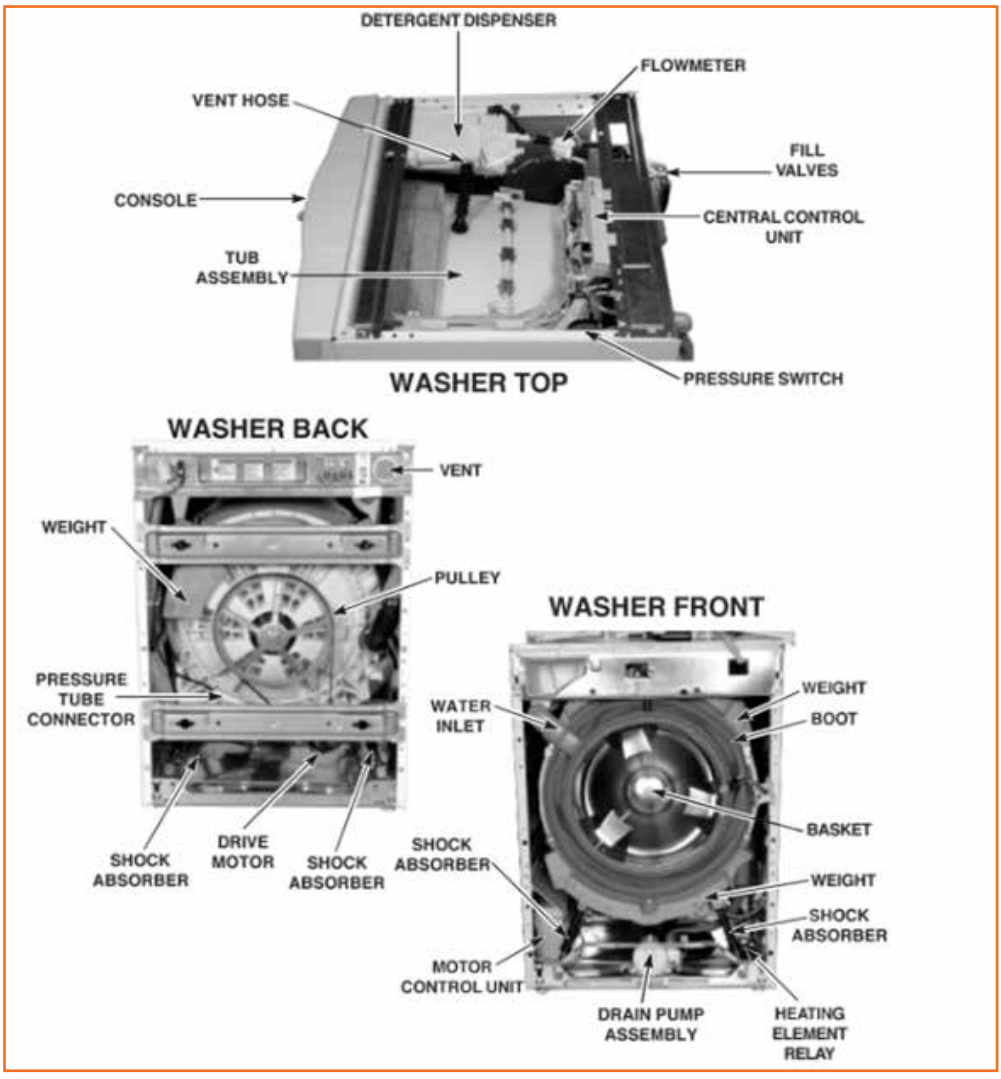


Fig.2.2.6: External and Internal Parts of a Washing Machine

2.2.5 Understanding How a Washing Machine Works

Most washing machine parts such as the inner drum, the pump, valves and the heating element are electrically controlled. The sequence of how the different parts and programmes of the washing machine is explained below

- **Step 1:** After the clothes are loaded into the washing machine and selecting the appropriate programme we have to press the START button
- **Step 2:** The programmer opens the water valves and hot and cold water enter the machine filling up the inner and outer drums through the detergent tray. The detergent and any other chemicals in the tray flows into the drum.
- **Step 3:** The water valves are then automatically switched off by the programmer
- **Step 4:** The temperature of the incoming water is controlled by the thermostat. If the water is too cold the heating element is automatically switched on.
- **Step 5:** When the water temperature is hot enough, the inner drum begins to function rotating back and forth mixing the detergent with the clothes.
- **Step 6:** The detergent extracts the grime from the clothes and the programmer opens the valves to extract and drain the dirty water from the drum,
- **Step 7:** The valve automatically opens again and clean water enters the drums.
- **Step 8:** The process continues several times until the detergent is completely washed off the clothes.
- **Step 9:** When the clothes are thoroughly rinsed, the inner drum rotates at a really high speed—around 80 mph (130 km/h). The spinning motion helps the clothes to dry.
- **Step 10:** Any remaining water is pumped out from the outer drum and the wash cycle comes to an end.

UNIT 2.3: Chemicals used in Washing

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with the chemicals that are used in washing fabric.
2. Use chemicals in proper volume to wash fabric.

2.3.1 Introduction

Garment washing involves the usage of different types of chemicals during different stages of the washing process. Chemicals are also used in the washing process for getting the desired effect on the garments.

The different types of chemicals used are as explained below:

Chemicals	Usage
Detergent	This is a popularly used chemical for all washing. It removes impurities form the garment and also. Detergents also include small amounts of perfume to provide a pleasant smell to the garment. There are many types of detergents such as acidic detergent and alkali detergent.
Surfactants	They are active cleaning agents, which penetrates and wets the fabric, loosens and emulsifies soil and keeps them active in the wash solution. Surfactants are either obtained from petrochemicals, animal fats or vegetable oils or a combination of these sources.
Alkalis	Alkalis help in raising the Ph level of the water. The controlled level of Alkalis in detergents help in effective dirt and oil removal without damaging the fabric.
Anti-staining agent	It is a mixture of macromolecules and surfactants and is used to produce the contrast/fading effect desired in fabrics such as denim. It also helps improve colour fastness after stone washing. It needs to be diluted before use.
Potassium Permanganate	It is a strong oxidizer and is mainly used during enzyme wash and is sprayed on the garment after it has been desized. PP Spray is done by using a nozzle which has a switch to start & stop and the PP sponging is done manually. It has to be diluted before use.
Soda ASH (Na2Co3)	It is a white crystalline solid and is also referred to as washing soda. It is mainly used for softening water.

Caustic soda (NaOH)	It is a strong alkali substance used to remove colour from the garment and is also used as a cleaning the garment. The use of caustic soda increases the PH value of the garment. It is also used as a de-sizing agent.
Sodium Meta Bisulphite	It is a yellowish white crystalline powder which is used as a bleaching and reducing agent. It easily dissolves in water. Sodium meta bisulphite is used to neutralize the garment from potassium permanganate.
Softener	Softener is widely used chemical in garment washing for softening the garments. It is used at the end of the washing process to neutralise any detergent that is left in the garment. Softeners work through the garments cellulose.
Enzyme	Enzymes are used as cleaning agents and also helps provide fabric care. It enhances the colour fastness and rubbing fastness properties of the garment. It helps remove residual hydrogen peroxide from bleached garments and prepares the garment for further processing. It also provides an eco-friendly way of developing Bio-polishing effect on denim garments.
Hydrogen Peroxide	Hydrogen peroxide is used for its antibacterial and antiviral properties. It also helps control mould and mildew. It is also used as a bleaching and cleaning agent.
Bleaching powder	Bleaching powder is used to reduce colour and achieve whitening effect from the garments. Using bleach while washing white garments helps retain the whiteness in the garment. There are two basic types of bleach, namely chlorine bleach and non-chlorine bleach. It is important to keep in mind the the type of fabric and the water used for washing before using bleach.
De foaming agent	De foaming agents are used to reduce the foam from the garments when excessive foam is formed during the dyeing and washing process.
Silicon	Silicon is a chemical used to provide smoothness, durability and softness to the garment during the finishing of the washing process. It has high lubricant properties.

Fig.2.3.1: Chemicals and their usage in laundry

2.3.1.1 Function of Chemicals in Textiles

- **Enzyme:** The action of enzyme during enzyme wash it hydrolysis the cellulose. At first it attacks the having projecting fibers and hydrolyzed them. Then it attacks the yarn portion inside fabric and party hydrolyzed the yarn portion. As a result color comes out from the yarn portion and faded affect is produced.
- **Detergent:** Chemical character is fatty alcohol polyglycol, in an aqueous, glycolic solution. Detergent is widely applicable in the continuous and discontinuous pretreatment of all tyPecs of fiber and their blends. To remove impurities, mineral oil contamination and sizes from the garments scouring of goods for dyeing and printing fully white and colored articles.
- **Acetic Acid (CH_3COOH):** Acetic Acid is used to neutralize the garments from alkaline condition and to control the pH value in wash bath.
- **Antistain:** Antistain is used to prevent the staining on weft yarn of the denim (white yarn), white pockets of garment, levels, and contacted fabrics of garment and increased the brightness of fabrics; it is also acts as anti-creasing agent.
- **Bleaching powder:** Bleaching powder is an oxidizing agent. It is used in washing plant for color out from the denim garments. We can achieve deferent shade of color on garment i.e. Dark, Medium, Light shade.
- **Sodium hyposulphite:** Sodium hyposulphite is used to neutralize the garments from chlorine bleach.
- **Caustic Soda:** Caustic created the role in bleach technique without color change the garment and has a good cleaning power. It is work as fading affect/old looking affect come rapidly on garments.
- **Soda ash:** Soda ash creates alkaline medium for the breakdown of pigment dye. Soda ash help to uniform bleaching action on bleach bath. It has a cleaning power and help color fading affect of garment. It is used also for color fixing in dye bath.
- **Sodium Bicarbonate:** Sodium bicarbonate is used in washing plant in the bleach bath with bleaching powder for Denim Light shade because easily color out with in short time. As a result production increase and costing is low.
- **Potassium permanganate:** Potassium permanganate is used in Acid wash with Punic stone for color out from the garments. It is used also spray chamber by nozzle for color out (whitish affect) from the garments.
- **Flax Softener (Cationic, non ionic):** Softener is used to make the garments treated textiles a surface feel that is both sickly and soft and also provides excellent lubricating properties.
- **Micro Emulsion Silicon:** Amino Silicon is a textile finishing agent consisting mainly of amino modified silicon.When applied on fabrics, it gives durable softness, lubricity, elastic handle, antipilling, dimensional stability,tear resistance and fabric to be cut and sewn more easily allows and improving wear and easy care properties.
- **Sodium chloride (salt):** It helps to exhaust dye in to the fiber.
- **Buffer:** Buffer is used in washing plant for pH control of enzyme bath, softener bath, desizing bath.
- **Hydrogen peroxide:** Hydrogen peroxide creates the prime role in bleach wash technique. In alkaline medium, hydrogen peroxide breaks up and gives some perhydroxhyl ion, which discolor the coloring materials and as a result fading affect is developed. Hydrogen peroxide is used in scouring, bleaching bath for white/ready for dyeing of gray fabric garments. It is used also neutralized the garment from alkaline condition.
- **Stabilizer:** Hydrogen peroxide is work a good condition at temperature above 90°c, when temperature raise to 90°c then break the Hydrogen peroxide. Stabilizer is used to protect break the hydrogen peroxide an peroxide works in bath smoothly.
- **Fixing Agent:** fixing agent is used for unfixed dye to fix on fabrics, when fabric color will be proper fixing then color fastness & rubbing fastness will be increased.

- **Catanizer:** Catanizer is used in pigment exhaust method processing. Pigment is color not dyestuff. Pigment color has no affinity to fabric when catanizer is used in fabric then increase the affinity between pigment color & fabrics.
- **Optical brightness:** Two types of optical brightener are used in the washing plant - a) Red brightener. b) Blue brightener. Mainly optical brightener is used for improve the brightness of garments.
- **Resin:** Resin is high efficiency textile resin based on etherified dimethylol glyoxal monoureine urea. Resin is used for the creation of semi-permanent creases in denim and other cellulose fabrics. It is used also cotton and polyester fabric. Fabric retains soft handle after washing.
- **Sodium Metabisulphite:** Sodium metabisulphite is used in the washing plant to neutralize the garment from potassium permanganate.
- **Desizing agent:** Desizing agent is used to remove mainly starches, cmc, waxes, fats pectin's, minerals & unfixed indigo dye from denim, twills, poplin & canvas fabrics etc.
- **Acid Wash:** It is normally done on the garments from heavy fabrics like denim, course canvas, sweater & thick twill etc.

2.3.2 Shelf Life of Chemicals

While using chemicals, it is important to ensure that the shelf-life of the chemicals has not expired. Shelf life may be defined as the time for which an item remains usable. If used after expiration of shelf life, the chemical composition of the product may change resulting in adverse effect on the garment.

- **Surfactants:** These products have a shelf life of up to 2 years if the container has been unopened and stored under moderate temperature conditions.
- **Alkalis:** These generally have a shelf life of about 6 months to a year, if stored in ideal conditions according to the instructions
- **Softeners:** Softeners have a shelf life of about 1 year, if stored in ideal conditions according to the instructions.

UNIT 2.4: Understanding the Parameters Which Affect Washing

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with the parameters affecting washing.

2.4.1 Introduction

There are many parameters which affect the quality of the garments when they are being treated or being washed. It is very important to understand these parameters to ensure that the garment does not get damaged as they undergo certain processes.

Few of the important parameters to consider are:

Parameters	Effects
pH level	The pH of a substance is a measurement of its acidity or basicity. Any pH below 7 is considered acidic, and any pH above 7 is considered basic, or alkaline. A pH of 7 is neutral, which is neither acidic or basic. The pH of laundry detergents is between 7 and 10. Most detergents have a pH closer to 9. If detergents were acidic, they would be more harmful to the fabric
Temperature	The water temperature determines how effectively the detergent and other chemicals work so it is very important to maintain the right washing temperature. Cold water (below 65 degrees F)- If the water temperature is too cold, the detergent will not activate properly, leaving a powdery residue on the garment, also the clothes will not be washed properly. Cold wash is only suitable for very lightly soiled or bright coloured fabric. Warm water (90 degrees F) – Warm water is suitable for washing light clothes that won't run. It minimises colour fading and wrinkling of the garment. Hot water (130 degrees F. or above)- Hot water is best to remove germs and heavy soil. However, hot water can shrink, fade and damage some fabrics.
Spin speed	A high spin speed is energy saving and normally does not affect the fabric as the garments tend to not rub into each other and are pressed against the drum due to the force of the spinning action, However, delicate garments and wool should not be washed with a high spin speed as these fabrics may be stressed too much.

Water	Water hardness is caused due to high quantity of calcium and magnesium present in the water. When hard water comes into contact with the laundry detergent it will leave soapy residual on the garment. Higher amount of good detergent or the use of a separate water softener is required to control the hardness in the water.
Time	It is very important to select the correct washing programme. Lighter washing load and light fabric requires lesser time and a heavier load and soiled garments requires longer washing time.

Fig.2.4.1: Parameters and their effeccts

UNIT 2.5: Garments and Its Parts

Unit Objectives

At the end of this unit, participants will be able to:

1. Identify different part of garments.
2. Recognize types of fabrics and yarns.

2.5.1 Understanding Garments

A garment is a piece of clothing which is used to cover the human body. It is one of the basic necessities of human beings apart from food, air and water. It is used to protect our body against natural elements. Garments have now become an important aspect of fashion and also carry a socio economic message. Garments are also known as dress, cloth, attire or apparels.

2.5.2 Different Types of Garments

Garments can be categorized under Ladies, Gents, toddlers and infants

- **Ladies:** Most commonly used Garments for Ladies are Skirts, dresses and blouses.

  Saree and Salwar Kameez is the most popular ladies garment in India.
- **Gents:** Most commonly used Gents garments are Shirt, Trouser, T-shirt and shorts.

  Kurta and pyjama is widely worn by men in India.
- **Toddlers:** Most commonly worn toddlers garments are shorts and t-shirt for boys and Frocks, skirts and tops for girls.
- **Infants:** Rompers and jumpsuits are the most comfortable garments for infants.

2.5.3 Recognising Parts of Garments

Parts of formal shirt

Fig.2.5.1 (a): Parts of formal shirt

Fig.2.5.1 (b): Parts of formal shirt

Parts of a formal Trouser

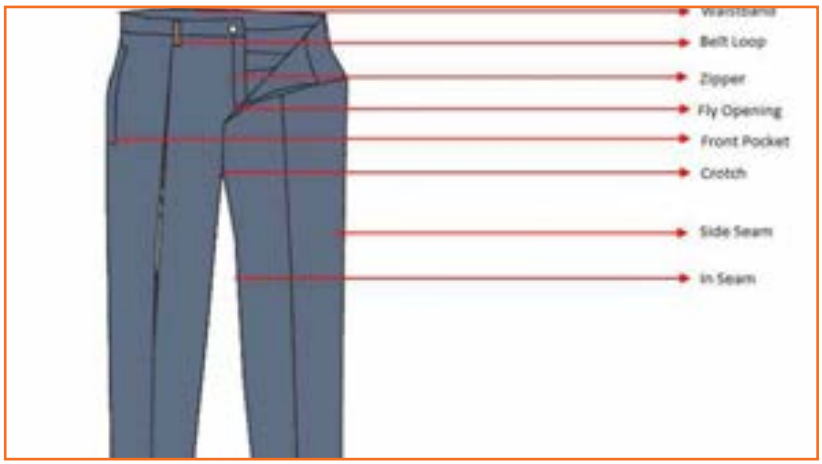


Fig.2.5.2 (a): Parts of formal trouser

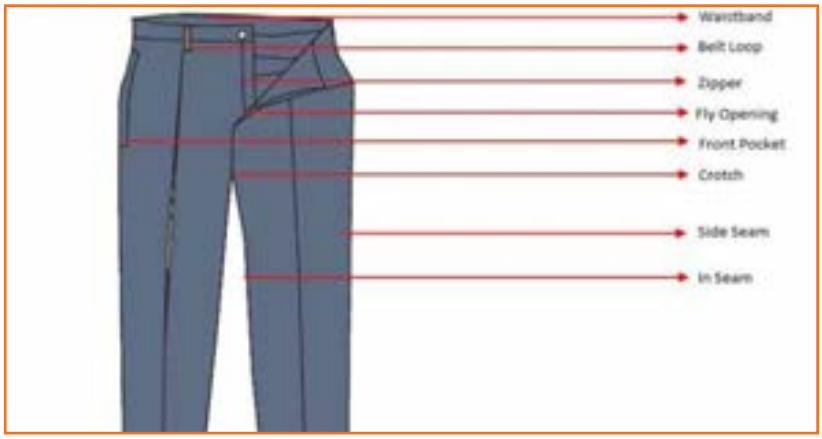


Fig.2.5.2 (b): Parts of formal trouser

Parts of a Polo Neck T-Shirt

Fig.2.5.3: Parts of Polo Neck T-Shirt

Parts of a Basic Jeans

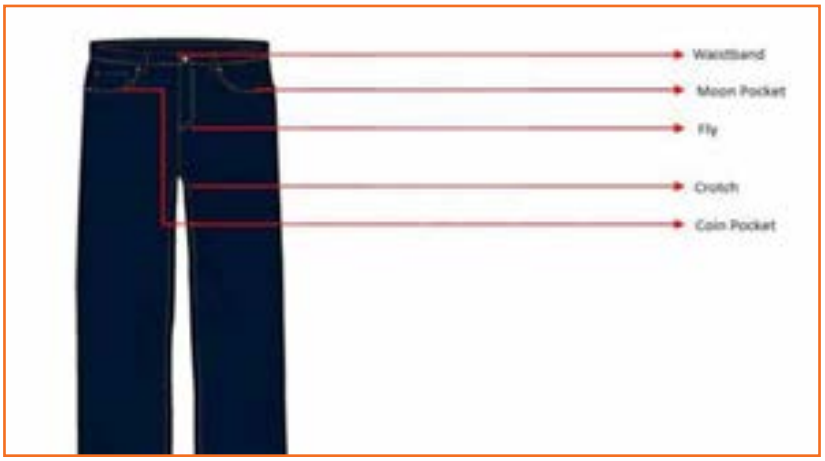


Fig.2.5.4 (a): Parts of a Basic jeans

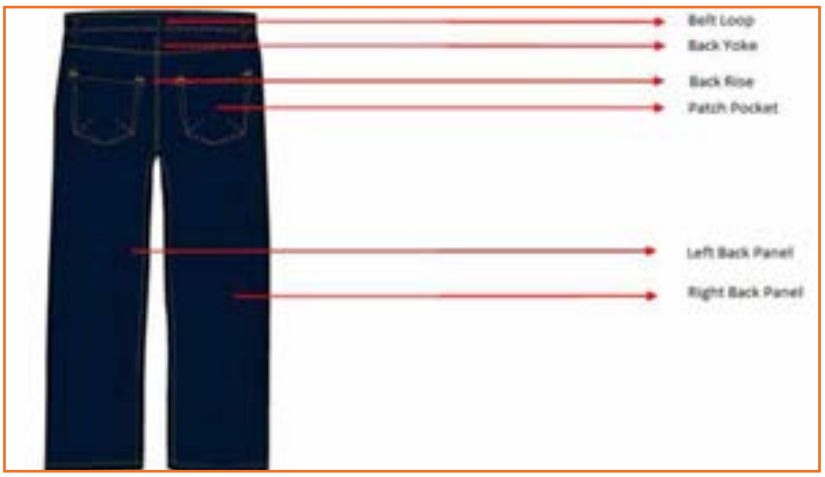


Fig.2.5.4 (b): Parts of a Basic jeans

2.5.4 Different Types of Fabrics and Yarns

Fig.2.5.5: Types of Fabric and yarns

2.5.5 Most Commonly Used Fabrics in Garments

Cotton: Cotton is probably one of the most common fabrics you are likely to have in your home as clothing. Cotton is used in a wide variety of clothing and home furnishings as it is a strong fabric which absorbent and easy to work with. Cotton is easily washed or dry cleaned.	
Denim: Denim is made from tightly woven cotton. It is a very heavy weight fabric with very little drape or stretch. Denim is very durable and that is why most commonly used in jeans. It is machine washable.	
Chiffon: Chiffon is a sheer fabric with a free flowing drape and crepe like structure. Chiffon is usually made of silk or polyester. It is very light and thin and these features make it a very challenging material to sew. Chiffon is a popular fabric for summer garments because of its light weight.	
Silk: Silk is a natural protein fibre. It is a delicate fabric and is very light weight and due to these features it has a free flowing and smooth drape. It has a slightly shimmery appearance. It is a difficult fabric to work with as it is very slippery. Its elasticity is very moderate to poor. Apparels made of silk have to be Dry cleaned	
Wool: Wool is made from variety of animal coats. There are around 200 different types of wool. It absorbs and realises moisture quickly and is a very popular fabric used for cold weather garments. It is hardwearing and resists wear and tear.	

Fig.2.5.6: Fabrics in Garments

2.5.6 Most Commonly Used Yarns in Garments

Yarn is prolonged length of interlocked fibres (of cotton or silk or wool or nylon) , suitable for use in the production sewing, crocheting, knitting, embroidery, textile and rope making.

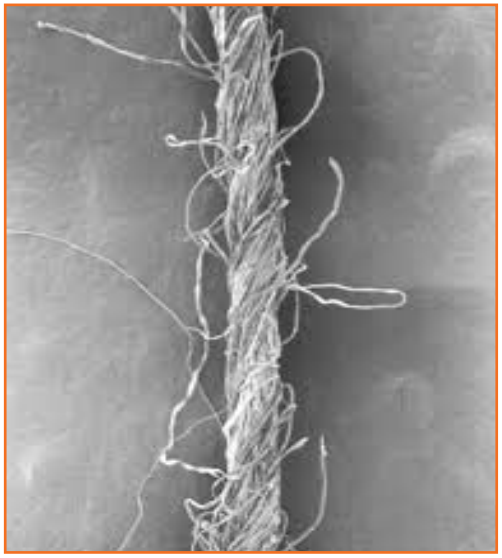
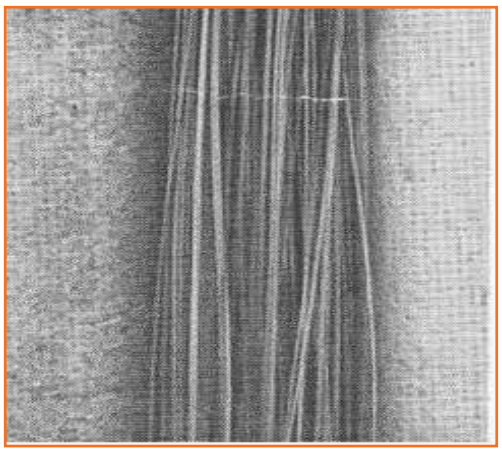
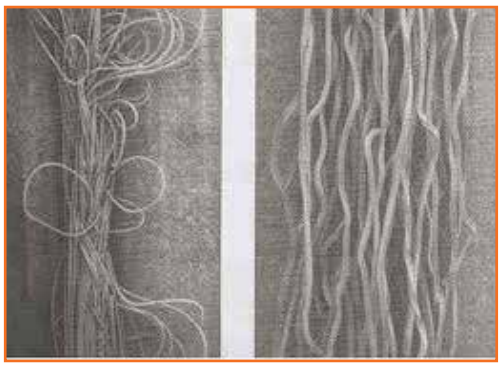
Ring Spun Yarn: These are produced on the ring and traveller system from a wide variety of fibre types	
Rotor spun Yarn: These yarns are spun b binding the fibres by twisting it. Rotor spun yarns are generally produced from short staple fibers.	
Flat continuous filament yarn: Man-made yarns either by monofilament or multifilament form.	
Textured continuous filament yarn: Are man-made yarns which have been modified by subsequent processing to introduce durable crimps, coils loops or other distortions into the filaments.	

Fig.2.5.7: Yarns in Garments

2.5.7 Process Flow of Garment Manufacturing

Based on present apparel industry, garment manufacturing processes are categorized as:

Pre-Production Processes:

- Meeting with buyers
- Development of preliminary samples for the buyer: In this stage after receiving buyer's concept or instructions on the new style, samples are made with available fabrics and trims.
- Development of fabric sample, bit loom, print and embroidery artwork: Fabric is developed as per the buyer requirement. Fabric development means sourcing of customer specific fabric with matching properties, dyed and finished for solid colors. For the solid color lap dip approval is very important process. Until lap dip sample is approved merchants re-submit lap dips. In case of yarn dyed fabrics merchants develop fabric sample with specified design, stripes or checks. These fabric samples called as Bit Loom. Other approvals such as print and embroidery artwork approval and color approval are done. It may be done later stage at time of pre-production.
- Estimating complete cost of the garment (including manufacturing cost): Merchants prepare cost sheet with details cost break up such as raw material cost, manufacturing cost, overheads and margin. Costing is very a critical stage. Because whether a company will get order or not depends on their costing. If they garment cost is very high then manufacturer may lose the order and on other hand if factory keep their cost low, they will not earn profit from the order. Estimation of the garment cost should be done on data based.
- Developing pattern, pattern correction and pattern grading: Pattern master prepares first fit pattern, then re-develop pattern adding buyer comments and rectification on fit sample. After fit approval pattern master grade pattern for size set samples only for specified sizes. Once order is ready for production they grade pattern for whole size range.
- Sample fitting, Sample making based on size and approval from buyer: Each sample has certain purpose. Samples are made in sampling department and sent to buyer for approvals.
- Revision and correction of fit samples according to buyer’s comments: If sample is not approved or further work is recommended by buyer. Correction is done and re-submitted to buyer.
- Gaining approval for embroidery design, fabric swatches, print colors and beading.
- Line planning, planning material and its usage and material planning: To start production on time and ship the order on time planning is must. Planning is needed for material sourcing, production capacity, line planning. Scheduling of jobs and responsibility is defined at this stage.
- Placing order for trims, fabrics, packing materials and accessories: Sourcing of raw material.
- Quality testing of raw materials including fabrics: Physical properties are being tested for bulk fabric. This testcan be done in in-house testing labs.
- Closely studying the approved sample.
- Pre-production meeting

Production processes:

- Marker Making
- Spreading
- Fabric Cutting
- Sorting/ Bundling

- Sewing or Assembling
- Inspection

Post production processes:

- Pressing/ Finishing/Trimming
- Final Inspection
- Packing
- Dispatch

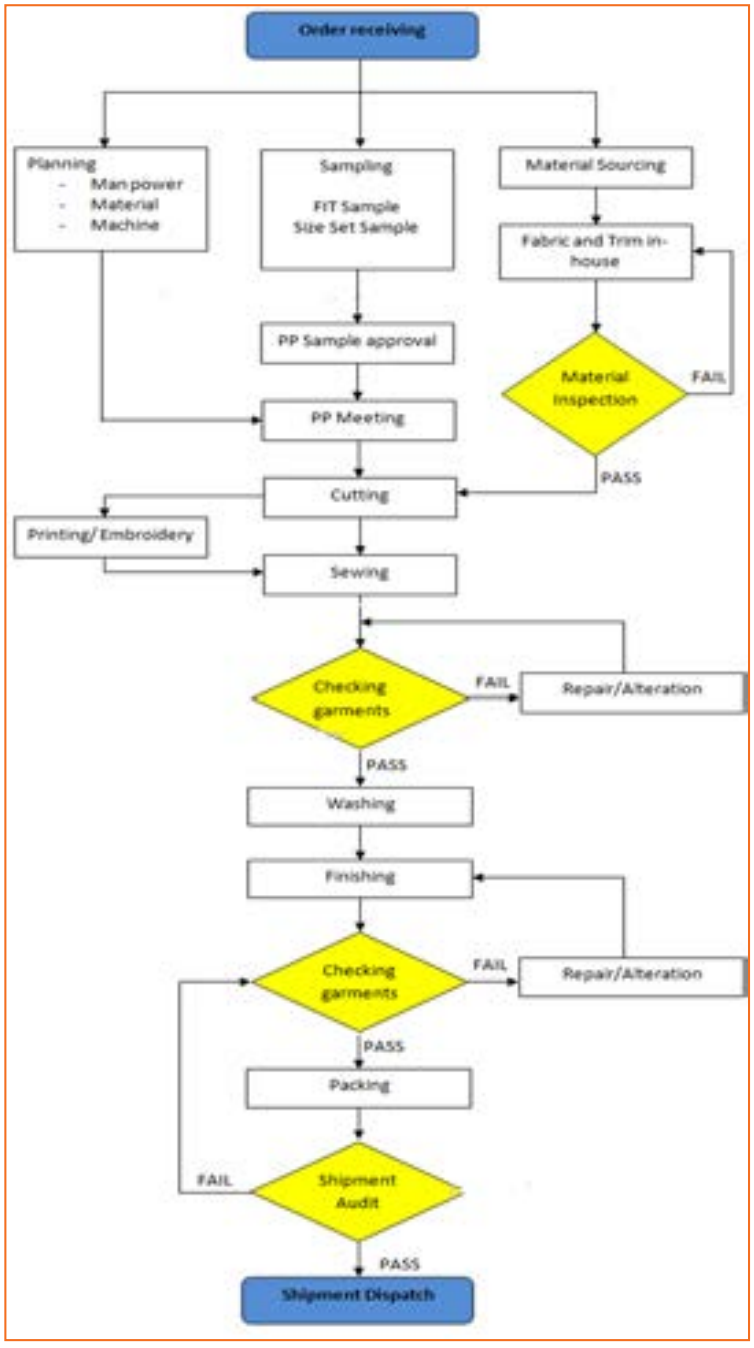


Fig.2.5.8: Garment Manufacturing Process

Garment Finishing Process

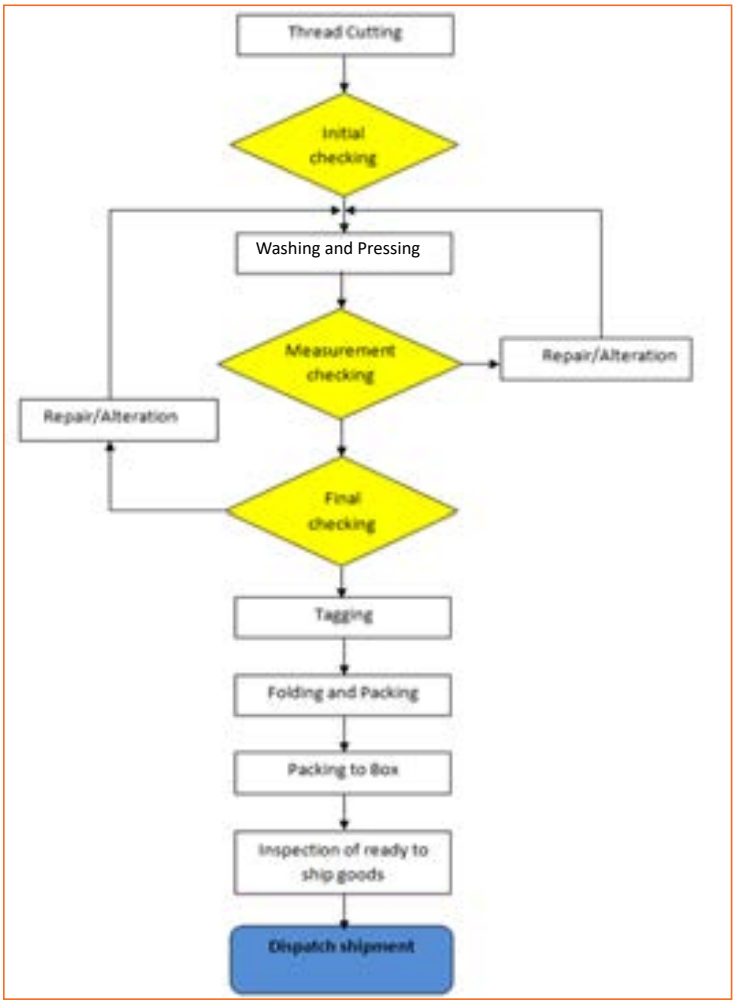


Fig.2.5.9: Garment Finishing Process

Industry Visit

The purpose of visiting an apparel production unit is to get hands on knowledge about various processes involved in the work of an Washing Machine Operator. During the visit you have to interact with Washing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction with apparel production team. When you go to an apparel production unit, you should:

- Understand different types of garments like; ladies, gents, toddlers, infants etc.
- Recognize different parts of garments like; pant, shirt, T-shirt etc.
- Understand types of fabrics and yarns. Know about the most commonly used fabrics and yarns in India.
- Understand the process flow of garment manufacturing.
- Ask questions to Washing Machine Operators/supervisors if you have any query.

UNIT 2.6: Common Defects in Garments

Unit Objectives

At the end of this unit, participants will be able to:

1. Identify and rectify different types of defects.
2. Identify different types of faults.

2.6.1 Categories of Defects

Defects are categorised under three main areas

- **Critical defect:** A defect which makes the garment unsafe for individual consumption or it contravenes any mandatory regulations
- **Major defect:** An obvious defect in the appearance which reduces the usability and sale ability of the garment.
- **Minor defect:** A defect which is caused by a workmanship error beyond the quality standards but does not reduce the sale or consumption of the product.

Different Types of Washing Faults/Defects

- Running shading.
- High or low affect / abrasion on garments.
- Over blasting / low Blasting.
- Over grinding / low grinding.
- To high hairiness.
- Poor brightness.
- After wash hole.
- Very dark & very light.
- Bleach Spot.
- Bad smell due to poor neutralization.
- Poor hand feel.
- Bottom hem & course edge destroy.
- Spot on garments.
- Out of range / level of pH value of garments.
- Colour shade variation.
- Crease Marks.

Finishing Defects

Unwanted marks or stains on fabric: Oily stains with dust adhered to surface which makes the stains more prominent and difficult to remove, due to contact with oil or grease covered exposed machine parts, careless handling could be another cause. Some stains and their treatments are below:

Stain	Treatment
Adhesive tape, chewing gum, rubber cement	1. Pour some cold water or rub ice after that scrape with a dull knife. 2. Drench with prewash stain remover or cleaning fluid. 3. Rinse and launder.
Beverages (coffee, tea, soft drinks, wine, alcoholic beverages)	1. Soak stain in cool water. 2. Treat with prewash stain remover, liquid laundry detergent, liquid detergent booster or paste of powder laundry product and water. 3. Decontaminate using sodium hypochlorite bleach, if safe for fabric, or oxygen bleach. NOTE: Older stains may respond to pre treating or soaking in a product containing enzymes, then laundering.
Collar, cuff soil	1. Treat with prewash stain remover, liquid laundry detergent or paste of powder detergent and water. 2. Launder.
Dye transfer	1. Attempt restoration of white fabrics that have picked up color from other fabrics by using a packaged color remover, following label directions. 2. Launder. **PLESAE NOTE:** If dye remains, launder again using sodium hypochlorite bleach but check if it is safe to be used for the fabric. For non-colourfast fabrics, soak in oxygen bleach, then launder. This type of stain may be prevented if proper sorting and laundering procedures are followed.
Fabric softener	1. Dampen the stain and rub with bar soap. 2. Rinse out, then launder
Grease, oil	**Light Stains:** 1. Pre treat with prewash stain remover, liquid laundry detergent or liquid detergent booster. 2. Launder using hottest water safe for fabric. **Heavy Stains:** 1. Place stain face down on clean paper towels. Apply cleaning fluid to back of stain. 2. Replace paper towels under stain frequently. 3. Let dry, rinse. Launder using hottest water safe for fabric.

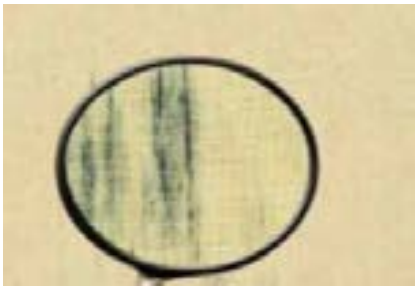
Ink	**Try pretreating using one of the following methods:** **Prewash Stain Remover:** 1. Pretreat using a prewash stain remover. 2. Launder. **Denatured Alcohol or Cleaning Fluid:** 1. Sponge the area around the stain with the alcohol or cleaning fluid before applying it directly on the stain. 2. Place stain facedown on clean paper towels. Apply alcohol or cleaning fluid to back of stain. Replace paper towels frequently. 3. Rinse thoroughly. Launder. Alternate Method for Denatured **Alcohol or Cleaning Fluid:** 1. Place stain over mouth of a jar or glass; hold fabric taut. 2. Drip the alcohol or cleaning fluid through the stain so ink will drop into the container as it is being removed. 3. Rinse thoroughly. Launder. **PLEASE NOTE:** Some inks in each of the categories like; ballpoint, felt tip,liquid- may be impossible to remove, Laundering may set some types of ink.
Nail polish	**PLEASE NOTE:** Nail polish may be impossible to remove. 1. Try nail polish remover but do not use on acetate or triacetate fabrics. 2. Place stain facedown on clean paper towels. Apply nail polish remover to back of stain. Replace paper towels frequently. 3. Repeat until stain disappears, if it does. 4. Rinse and launder.

Fig.2.6.1: Different types of defects

2.6.2 Washing Defects

The garments are often damaged during the washing process due to it being exposed to chemicals and heat. The common washing defects are:

Defects	Causes	Remedies
Uneven whiteness	• Water hardness • Foaming in the bath • Inappropriate use of defoamer • Inappropriate use of Surfactants	• Use water softener • Use of right quality of defoamer • Appropriate use of defoamer • Appropriate use of surfactants

Low degree of whiteness	• Low bleaching Ph. • Low steaming temperature	• Ph level should be 10 or 11 • Steaming temperature should be set at 90-95 degrees C
Poor Shrinkage control	• Excess caustic on the fabric • Fabric not stretched sufficiently while on the frame	• Control caustic level before the fabric comes off the frame. • Stretch fabric properly on the frame.
Inconsistent shade 	• Improper use of Surfactants, fixatives and lubricating agents • Water hardness	• Use of compatible dye bath agents • Use water softening agents
Oil stains 	• Use of wrong type and bad quality defoamer	• Use self-emulsifying silicone defoamer
Dye stains 	• Improper mixing of dyes • Due to improper handling	• Poper mixing of dyes • Handling dyes and fabric correctly
Water marks 	• Contamination with water prior to fabric treatment • Surface pressure of one layer over another	• Proper handling of fabric

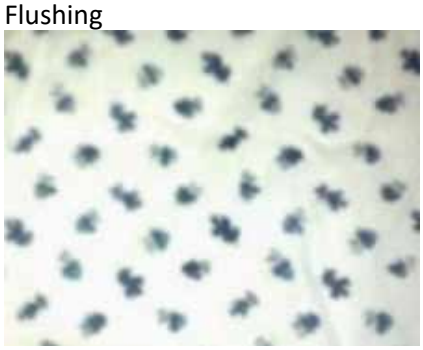
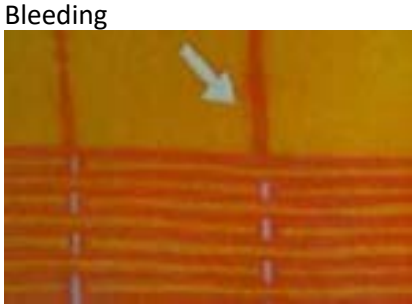
Flushing 	• Printed area bleeding into the unprinted area	• Curing should be done at the required temperature
Bleeding 	• High dyestuff concentration • Low viscosity of colour paste	• Ensure optimum dyestuff concentration • Proper viscosity of colour paste to be maintained

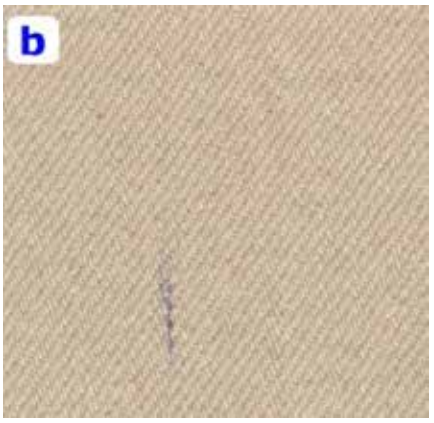
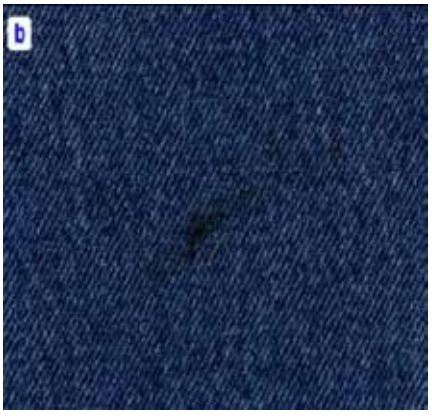
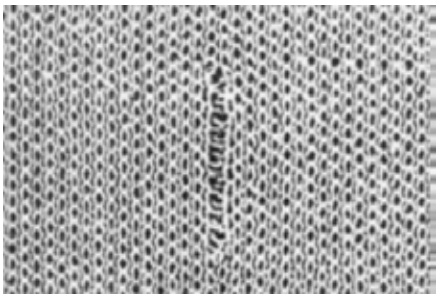
Fig.2.6.2: Washing defects

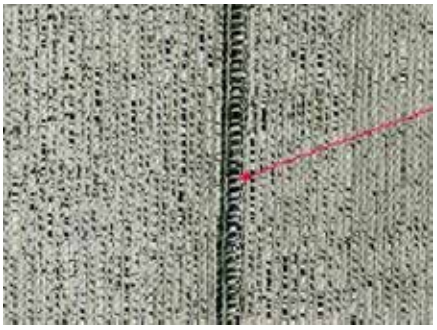
2.6.3 Common Defects

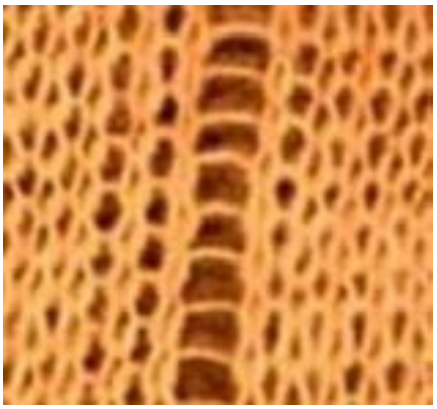
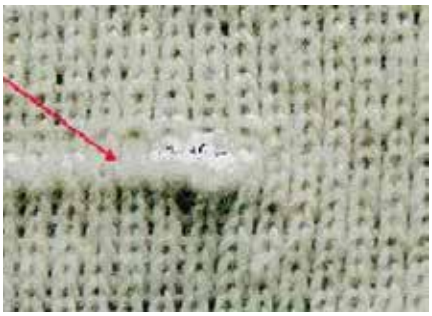
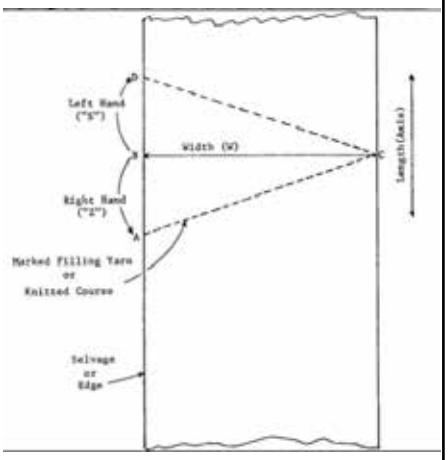
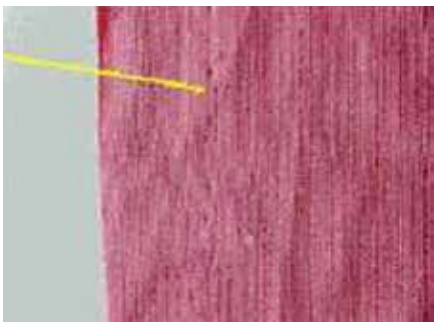
Common Woven and Knit Fabric Defects

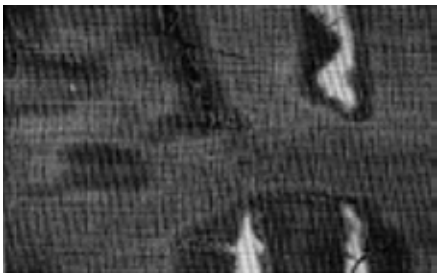
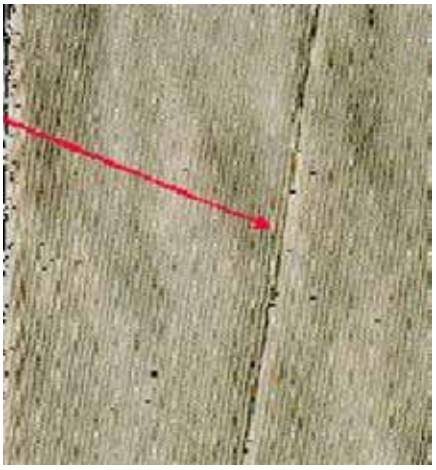
Defect	Explanation	Severity	Photograph
Defects of Woven Fabric			
Dropped Pick	Caused by the filling insertion mechanism on a shuttle less loom not holding the filling yarn, causing the filling yarn to be woven without tension. The filling yarn appears as "kinky."	Major	

End Out	Caused by broken yarn and loom continuing to run with left end.	Major	
Slub	Usually caused by an additional piece of yarn that's woven into fabric. It can even be caused by thick places in the yarn. Often is caused by fly waste being spun in yarn in the spinning process.	Major or Minor	
Knots	Caused by tying spools of yarn together	Usually Minor	

Mixed End (Yarn)	Yarn of a different fiber blend used on the wrap frame, resulting in a streak in the fabric.	Usually Major	
Mixed Filling	Caused by bobbin of lightweight yarn or different fiber blend used in filling. Will appear as a distinct shade change	Major	
Soiled Filling or End	Dirty, oil looking spots on the wrap or filling yarns, or on package-dyed yarn	Major	
Defects of Knitted Fabric			
Drop Stitches	Results from malfunctioning needle or jack. can appear as holes or missing stitches.	Major	

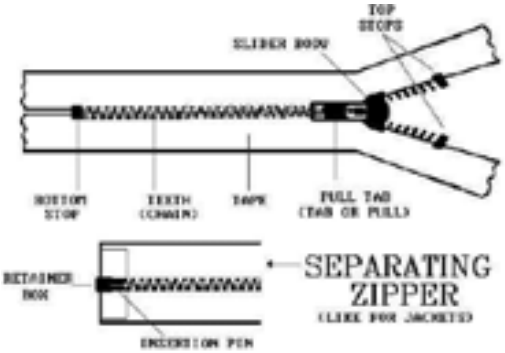
Hole	Caused by broken needle.	Major	
Missing Yarn	Occurs in circular knit. Caused by one end of yarn missing from feed and machine is running continuously.	Major	
Mixed Yarn	Occurs in wrap knit. Results from wrong fiber yarn (or wrong size yarn) placed on wrap. cloth might appear as thick end or different color if fibers have different affinity for dye.	Major	
Needle Line	Caused by bent needle forming distorted stitches. Usually verticals line.	Major or Minor	

Runner	Caused by broken needle. Can appear as vertical line. (Most machines have a stopping device to prevent machine once a needle breaks.)	Major	
Slub	Usually caused by a thick or heavy place in yarn, or by lint getting onto yarn feeds.	Major or Minor	
Askewed or Bias	Condition wherever filling yarns are not square with wrap yarns on woven fabrics or wherever courses don't seem to be square with wale lines on knits.	Major or Minor	
Pin holes	Holes along selvage caused by pins holding fabric while processes through stenter frame	Major if extents into body of fabric	

Straying End	Caused when an end of yarn breaks and loose end strays and is knit irregularly into another area.	Major	
Bowing	Usually caused by finishing in knits ,the course lines lie in an arc across width of goods.	Major on stripes or patterns Minor on Solid color	

Accessories Defect

Zippers		
Slider defect	**Won't Lock:** Not apparent without testing by placing Zipper slider in locked position and applying tension. **Faulty Dimension:** Not readily apparent. May cause either a hard or a loose operating zipper. Either condition may result in zipper failure before garment is worn out. **Crushed Slider:** May be due to improper garment pressing or due to padding or compensating springs in the presses not being in best condition. **Tarnished:** Does not generally interfere with operating qualities but is a matter of appearance only. Judging" this as a defect depending upon degree of tarnish. Burn or Rough Spots Not immediately apparent. Can cause snagging and early wear on the upper tape. Lock Prong Interferes Indicated by pull-tab not staying in locked position or slider not moving freely after being released from locked position. **Weak Slider Bodies:** Can best be determined with correct testing equipment. However, manifests itself by slider becoming compressed or crushed below minimum pressure or becoming distorted enough to form hard operation.	 
Chain or Teeth Defect	**Improper Dimensions:** Not always apparent unless slider works with great difficulty or operates too easily. Zipper' may give initial satisfactory operation but fail after only moderate use and especially after laundering or dry cleaning. **Miss meshed and Unmeshed Teeth:** Readily visible, particularly in large. Usually results in inoperable zipper. Missing Teeth: Readily visible, will result in early failure of the zipper.	

	Misplaced Teeth: This refers to a tooth being out of position, and occasionally may involve two or three teeth. Seriousness ranges from trifling to almost as serious as a missing tooth depending upon the degree of misplacement and general design of zipper. **Off color:** This defect is quite apparent. Zipper makers usually carry an entire range of tape colours. because of similarity of different colours, one may be mistaken for another. it's also possible, because of color similarities or distinction in dye lots that the {two|the 2} halves of the zipper can have two different shades of tape. **Humpy Chain:** readily noticeable by its waviness. Causes issue at sewing operation and distorts finished garment's look. **Cord not attached to Tape:** because of skipped stitches during operation of sewing cord to tape. Not readily apparent however under strain, cord and teeth can rip away from tape and render zipper and garment unusable. Length: Improper zipper length for given opening.	
Top or Bottom Stop Defects	**Missing Top or Bottom Stop:** Readily apparent and will end in zipper failure. If facilities for attaching a top or bottom stop don't seem to be available, then the complete zipper ought to get replaced. In some instances, bottom stops ar hooked up at garment plant. an improperly or poorly attached bottom stop is also result of carelessness on a part of the operator or of improper functioning of the bottom stop machine.	
	Snap Fasteners	
Hard Action	In light-weight goods this may result in stud or socket pulling through the material. The snap fastener manufacturer can be of help in recommending proper tension of stud in socket for weight of garment material.	

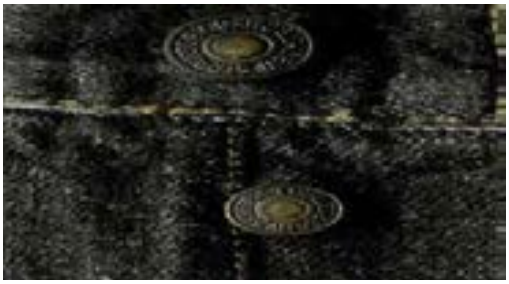
		
Light Action	Snap fastener does not stay closed because of lack of proper tensions. Same comment applies as for tight closure.	
Hooks & Eyes	**Improperly Applied:** This is usually caused by a careless operator or improperly adjusted attaching equipment, and corrections are usually simple when apparent. **Improper Alignment:** Gauges are available for attaching equipment to assure proper alignment in positioning. this can be a necessary if garment is to own a properly tailored look. If the top of the zipper is extended into the waistband of the garment, than the hook and eye ought to be offset to prevent it from hit the zipper material. **Poor Finish:** May be the result of improper finishing or pocking of the metal surface and, while this defect dose not interferes with the functional operation, it may not leave the desired finished appearance of the garment. **Tight/Loose Closure:** Attaching equipment bad fitt with an adjustable feature permitting secure application of hook and eye to either light-weight or heavyweight goods. If closures seem too tight, then one should instantly check the attach.ing equipment for correct adjustment.	
Buttons		
Rough or Dull Surfaces	This fault is not so serious except in cases of extreme roughness or poor surface appearance.	
Non- Uniform. Inaccurately Spaced Chipped or Blocked Sew Hole:	This type of defects cannot be noted during the garment manufacturing operation and can slip inspection unnoticed but it frequently causes needle breakage or cut thread.	

Fig.2.6.3: Accessory Defects

Resources

Scan the QR code or click the link to access the videos or e-book.

Description	QR Code
Chemicals used in Washing	https://youtu.be/xWUs36DQzrg
Garments Washing Process	https://youtu.be/_S1_wNz-KNE
Garments Washing Factory	https://youtu.be/LZbGG2NIKQY
Garments Washing Machine In Textile Industry	https://youtu.be/vYBG4bJtLKI
Types of fabrics	https://youtu.be/Vi6RPMbau98

Parts of a pant	https://youtu.be/6Cz04xfnZnk
Parts of a shirt	https://youtu.be/cAyiRPm4AZo
Different Types of Pocket	https://youtu.be/T_NFN7O6z5M

Industry Visit

The purpose of visiting an apparel production unit is to get hands on knowledge about various processes involved in the work of an Washing Machine Operator. During the visit you have to interact with Washing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction with apparel production team. When you go to an apparel production unit, you should:

- Understand different types defects/faults:
  - » Fabric defects
  - » Shading defects
  - » Cleanliness defects

- » Seam and stitching defects
- » Cutting defects

- Discuss with Washing Machine Operators/supervisors how the rectify the defects and faults.
- Ask questions to Washing Machine Operators/supervisors if you have any query.

Exercise

1. _____ technique creates different types of irregular color fading effect on the garment.
   a) Acid Wash
   b) Enzyme Wash
   c) Stone Wash
   d) Pigment Wash
2. _____ technique creates partial colour fading effect
   a) Bleach Wash
   b) Enzyme Wash
   c) Stone Wash
   d) Pigment Wash
3. Which machine is used to remove excess water in garment after Washing?
   a) Top Load Machine
   b) Side Load Machine
   c) Front Load Machine
   d) Hydro Extractor
4. Before washing garment are sorted according to _____?
   a) Code
   b) Colour
   c) Fabric Type
   d) All of the above
5. A detergents removes:
   a) Colour
   b) Shade
   c) Impurities
   d) None of the above
6. _____ is used to reduce colour and achieve whitening
   a) Soda ash
   b) Hydrogen peroxide

c) Bleaching powder

d) All of these

7. Which chemical use to neutralize any detergent left in garment after washing

a) Enzyme

b) Caustic Soda

c) Softener

d) Hydrogen Peroxide

8. What is the PH level of detergent?

a) 8-10

b) 6-8

c) 7-10

d) 8-11

9. High Spin speed is energy:

a) Spending

b) Saving

c) Neither

d) Depleting

10. Garments can be categorized under Ladies, Gents, toddlers and infants.

a) True

b) False

11. Two main categories of fabric are natural fabric and artificial fabric.

a) True

b) False

12. Post production processes for garment is:

a) Pressing/ Finishing/Trimming

b) Final Inspection

c) Packing

d) Dispatch

13. Defects are categorised under three main areas:

a) Critical defect

b) Major defect

c) Minor defect

d) All of the above

14. Defects of washing includes:
    a) Colour shade variation
    b) Missing yarn
    c) Needle line
    d) Drop stitch
15. Uneven whiteness is due to:
    a) Water hardness
    b) Foaming in the bath
    c) Inappropriate use of defoamer
    d) Inappropriate use of Surfactants

3. Carrying Out the Washing Process

Unit 3.1 - Different Washing Techniques

Unit 3.2 - Washing Dyed and Printed Products

AMH/N1811

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Familiarise with different techniques of washing.
2. Perform Normal and stone wash.
3. Familiarise with garment printing and dying.
4. Prevent fabric colour from bleeding, crocking and fading.

UNIT 3.1: Different Washing Techniques

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with different techniques of washing.
2. Perform Normal and stone wash.

3.1.1 Introduction

There are different techniques that have been introduced in garment washing to obtain the faded, stone washed and broken-in look which favours the current fashion trend. Apart from denims, now even woven and knit fabrics can also be dyed and given a desired effect by using different washing techniques and formulas. Garment washing process is mentioned in the following table:

Sl No.	Process	Procedure
1	Garments receive from sewing department	Firstly, the garments should be received from the sewer department.
2	Garments sent to the dry process	Garments are sent to the dry process department if the buyer permitted wash reference garment covering dry process.
3	Hand scrapping	Go through the garment label for specific product recommendations. Choose the appropriate detergent. If no care label exists, choose a mild detergent. Submerge the garment in the soapy water and soak. Use hand to swish the item through the sudsy water. Scrap the garments with hand and rub them until clean.
4	Whiskering	Fraction process is completed here by following buyer agreed wash reference garment.
5	Tacking	By chance the buyer approved wash reference garment contains tacking effect then tacking process should be done here by following approved garment.
6	Garments sent to the wet process	Just after completion of all the required dry procedures, garments are sent to the wet process department.
7	Garments loading into the washing machine	Here the garments are loaded into washing machine for required wash.
8	Washing	By following buyer approved wash reference, garments are washed here using required chemicals.
9	Drying	All the garments are dried here by using gas or steam dryer which is depended on the shade.
10	Garments sent to the dry process	After drying, all the garments are sent to the dry process for completing P.P process if the buyer approved wash reference garment contains this process.

11	P.P spray	Here P.P spray should be done using required chemical by following buyer approved wash reference.
12	P.P sprayed garments sent to the wet process	After completing P.P spray, garments are sent to the wet process for completing rest of the wet processes such as P.P neutral, Tinting and Softening.
13	P.P sprayed garments loading into the washing machine	Here P.P sprayed garments are loaded into the washing machine.
14	Washing	P.P neutral, Tinting and softening is done here by following buyer approved wash reference garment.
15	Extracting	When all the machine wash is completed then garments are unloaded from the machine and extracted by using hydro extractor.
16	Drying	Here, the garments are dried by using gas or steam dryer which is totally depends on the required shade.
17	Garments sent to the dry process	If the buyer approved wash reference garment contains 3D process then these garments should be sent again to the dry process for completing 3D.
18	3D	Here 3D process is completed by following buyer approved wash reference garment.
19	Curing	Applying 3D process, the garments are cured here by using woven machine.
20	Quality check (Q.C)	After completion of all above the processes, washed garments are checked here by following buyer approved wash reference garment.
21	Send to the finishing department	Finally all the garments are sent to the finishing department for the next required processes.

Fig.3.1.1: Garment washing process

3.1.2 Treatment Practises of Various Products/Garments

Acetate: Hand Wash — Air Dry

Acetate is a man-made fibre. Acetate is often found fused with other fibres to create easy to drape clothing. Acetate and acetate blends clean up well, but they can be very delicate to dye transfer. One should read the care label, and then wash garments containing acetate fibres in cold water.

Acetate is a feeble fibre which can be spoiled by twisting, wringing or heat. Hand wash acetate blends, or use the gentle cycle of the washer for machine-washable garments.

Iron garments containing acetate using a low-heat setting. Press on the wrong side and use a press cloth to avoid shine and preserve the beauty of the fabric.

Cotton: Hot Water Wash — Tumble Dry Warm

Cotton is the most favoured fabric because of the comfort abd adaptability. A natural fiber, cotton can be found in garments as casual as a T-shirt or as elaborate as a ball gown.

Cotton fibre will shrink unless the fabric has been pre-shrunk or processed, so start with the care label. "Cold water only" may signal that your ankle-length cotton trousers will convert themselves to Capri pants if not washed correctly.

Cotton items that are pre-shrunk may be washed in hot, warm or cold water, depending on the colour of thegarment and the care label recommendations.

Chlorine bleach may be added to white cotton wash loads to remove stains; colored cottons may be brightened by non-chlorine bleach formulated for coloured clothing. Cold-water washing will guard the deep color of cotton jeans and preserve the pep of brightly colored shirts.

Over drying cotton will embolden shrinkage; dry cotton garments at a lower heat and remove them from the dryer while still fairly cool.

Linen: Cool Water Wash — Air Dry

Linen is a natural fibre, made from the flax plant. Read care labels on linen garments to determine whether the garment must be dry-cleaned. If machine-washable, wash according to label directions, using water apposite to the garment's colour. Linen absorbs more water during the washing process than other fibre, so guard against overcrowding in the washer and dryer. Iron linen from the inside out, using steam at a hot iron setting.

Polyester: Cool Water Wash — Tumble Dry Warm or Air Dry

The last century's "wonder fiber," polyester creates bright, durable, easy-care garments. Most polyester fabrics may be machine-washed using warm water, but read the care labels first.

Tumble dry polyester clothes on low heat. Remove them from the dryer while they're still somewhat damp to prevent wrinkles and avoid a static accrual. If ironing is required, use a low emperature: Polyester will melt beneath a hot iron.

Silk: Hand Wash or Cool Warm Wash — Tumble Dry Cool or Air Dry

Agile, lustrous and strongest. This natural fiber is among the world's oldest clothing materials. While silk fibre itself is washable, many weave patterns used for silk fabric will tighten if washed, and deep dye tones may not be colour-fast.

Follow the garment labels, when cleaning silk garments. "Dry-clean only" signals a fabric or construction that will not survive washing. Launder washable silk garments using products formulated for hand washing or delicate fabrics. Never tumble silk in the dryer. Instead, roll the item in a towel to press out moisture, and then hang to dry. Press silk garments with a warm iron.

Spandex: Hand Wash — Air Dry

Spandex, an elastic fibre now combined in small amounts in many types of fabric to add stretch and comfort. While spandex is hand- or machine-washable, avoid hot water and chlorine bleach. Both will damage the spandex fibres. Unless care labels provide otherwise, hang spandex garments to dry, and avoid machine drying.

The heat of the dryer can cause some spandex-blends to wrinkle or simmer. If ironing is necessary, press the item quickly with a warm iron.

Wool: Hand Wash — Air Dry

Warm fibre are made from wool. Naturally insulating and easy to dye, wool fabric runs the range from rugged tweeds to floating wool challis.

In the natural state, wool is washable, but because many wool garments incorporate construction methods that cannot be washed, dry-clean wool clothing where the label requires. If washable, use a gentle detergent and hand wash or machine-wash as mentioned by the clothing care label.

3.1.3 Principles to use Detergents

So that the best result is achieved from washing, it is imperative that the usage of laundry detergent be correct:

- Using too much is uneconomical and surges the risks of poor rinsing of garments and 'over-sudsing' or foaming in front loaders.
- Using too tiny amount of detergent can cause poor cleaning results, and filth or hard water deposits may build up in your machine.

Both, how dirty your washing is, and the hardness of the water in your locality, can be the determinant of the amount of detergent that you will need to use.

Garments made of cotton bedding, bath towels, and everyday underwear can be washed with a normal detergent and still be clean like new. However, some more delicate garments and fabrics like silk, wool, or lace, need to be washed with a suitable laundry detergent.

These delicate materials can really grieve if they are laundered with a tough detergent, they can fade, become

tarnished, or even shrink! When washing delicate clothing, use a trivial detergent, which will help to guard the quality of the clothes but will still get them clean. It will also help if you choose the hand-wash, gentle, or delicate setting on your machine when washing these types of garments.

3.1.4 Normal Wash Procedure

- **Step 1:** Invert the garment to minimise unwanted stains and streaks.
- **Step 2:** Load machine with garments
- **Step 3:** Desize with alpha amylase and detergent
- **Step 4:** Drain the washing machine
- **Step 5:** Rinse
- **Step 6:** Fill machine with water, heat to 60°C. Liquor ratio could range from 10:1 to 20:1. A number of synthetic detergents can be used. Also, alkaline products such as soda ash or Disodium phosphate can be added in amounts ranging from 0.5 to 2.0 gramshiter.

Fig.3.1.2: Normal wash

Some chemical suppliers offer special products that accelerate the wash down process, dependent upon the particular dyestuff used.

- **Step 7:** Wash/tumble action for 20-60 minutes, depending upon desired effect.
- **Step 8:** Drain and rinse.
- **Step 9:** Apply softener.
- **Step 10:** Tumble dry.
- **Step 11:** Invert garments, if previously turned.
- **Step 12:** Iron if required

3.1.5 Stone Wash

Abrasive stones were introduced to garment washing to provide a unique appearance to the garment and also to accelerate the garment wash effect. Pumice and volcanic rocks are the most widely used for stone washing. Separate washing machines are used for this washing technique.

Fig.3.1.3: Stone wash

- **Step 1:** Load stones into the machine
- **Step 2:** Load garments into machine (ratio usually 0.5 - 3.0-part weight stones: l part weight garments)
- **Step 3:** Desize with alpha amylase enzyme and detergent. Liquor ratio approximately 10: Softeners or lubricants can be added at this stage.
- **Step 4:** Rinse
- **Step 5:** Refill and tumble with stones 30 to 90 minutes, depending upon desired effect. Liquor ratio approximately 10:1 at 50 - 70°C. Scouring additives can also be used.
- **Step 6:** Drain
- **Step 7:** Rinse
- **Step 8:** Apply softener
- **Step 9:** Unload
- **Step 10:** De-stone
- **Step 11:** Tumble dry
- **Step 12:** Iron if required

3.1.6 Cellulose Wash

It is a method used to soften the garments and give the garments a washed appearance.

Step 1: Load stones in machine (normally 0.5 - 2.0-part weight stones: l part weight garments).

Step 2: Load garments.

Step 3: Desize with alpha amylase enzyme and detergent.

Step 4: Rinse.

Step 5: Add cellulose enzyme (amounts, pH, temperature and cycle time dependent upon type of fabric and desired effects- manufacturer's recommendations should be followed).

Step 6: Adjust pH as recommended.

Step 7: Tumble 30-90 minutes.

Step 8: Drain

Step 9: Rinse well (70 C).

Step 10: Drain

Step 11: Rinse well (70 C).

Step 12: Drain

Step 13: Apply softener

Step 14: Extract and unload

Step 15: De-stone and tumble dry.

Step 16: Iron if required

3.1.6.1 Understanding Drying Techniques

The garments come in contact with various Aqueous solutions such as dyes and chemicals during the finishing process. Drying is an important process which helps remove the excess water from the garments.

The drying machine is an equipment which is used to remove the excess water by applying heat on the fabric. To avoid garment shrinkage and damaged fibres it is very important to understand what kind of heat different fabrics can take. Choosing the right setting, or cycle, during the drying process and following the right drying techniques protects the fabric from getting damaged and ensures that the garments last longer.

- **Regular or timed cycle:** This cycle uses high heat and is used for drying towels, jeans, sweats, and other heavy fabrics. the regular cycle uses the highest heat setting available on the dryer. It is very important to remember that the high heat is not suitable on fabrics and should be chosen only for appropriately.
- **Gentle:** As the name suggests it is a gentle drying cycle for delicate fabrics on very low heat. Garments made of rayon or silk, garment with added embellishment such as light beading or sequins should be dried on the gentle cycle
- **Permanent press:** This cycle can be used on almost all fabrics. It uses medium heat which prevents the garments from getting wrinkled and damaged.

- **Air dry:** This cycle uses no heat and is generally used for making the garments feel soft and refreshing. It also helps remove dust and lint from the garment.

3.1.7 Make Sure the Work Area is Free from Hazards

Hazard: By hazard we mean, a situation or thing that has the potential to harm a person. Hazards at work may include: noisy machinery, a moving forklift, chemicals, electricity, working at heights, a repetitive job, bullying and violence at the workplace.

Risk: Risk is the possibility that harm like any kind of injury, illness or death might occur when exposed to a hazard.

Risk control: Risk control is, taking action to eliminate health and safety risks so far as is reasonably practicable, and if that is not possible, minimising the risks so far as is reasonably practicable. Eliminating a hazard will also eliminate any risks associated with that hazard.

Fig.3.1.4: Risk control process

Process

- **Identify hazards:** Find out what could cause harm.
- **Assess risks:** If necessary understand the nature of the harm that could be caused by the hazard, how serious the harm could be and the likelihood of it happening.
- **Control risks:** Implement the most effective control measure that is reasonably practicable in the circumstances.
- **Review control** measures to ensure they are working as planned.

3.1.8 Labels

Care label: Care label is a vital types of label for the garments. It helps the customers to identify and understand how the product should be cared. It indicates different types of care instruction about the garments such as Washing, Bleaching, Drying, Laundering and Ironing, if it can be maintained in directed way, then the garments will achieve higher durability and garments shade will be perfect for its highest period of time.

Fig.3.1.5: Care label

Care instructions on care labels

- **Laundering:** It is a process of washing a garment with a detergent solution or bleach to remove dirt and stains.

Fig.3.1.6: Washing Instructions

- **Chlorine bleach:** A process carried out in aqueous medium before, during or after the washing process to remove stains or improve the whiteness of the fabric

Fig.3.1.7: Bleaching Instructions

- **Dry cleaning:** A garment cleaning process by means of organic solvents such as petroleum and fluorocarbon. This process consists of cleaning, rinsing, spinning and dying.

Fig.3.1.8: Dry Cleaning Instructions

- **Tumble drying:** It is a process of removing residual water from a washed textile article, by treatment with hot air in a rotating drum.

Fig.3.1.9: Dry Instructions

- **Ironing:** A method of pressing using a heated iron. This is a process used to remove the creases in a garment.

Fig.3.1.10: Ironing Instructions

Care Labeling Systems

International care labelling system: The international Symposium system was introduced in 1963 in Paris. International association for textile care labelling (GINETEX) replaced the international Symposium system in 1975. Below mentioned symbols are used in GINETEX system.

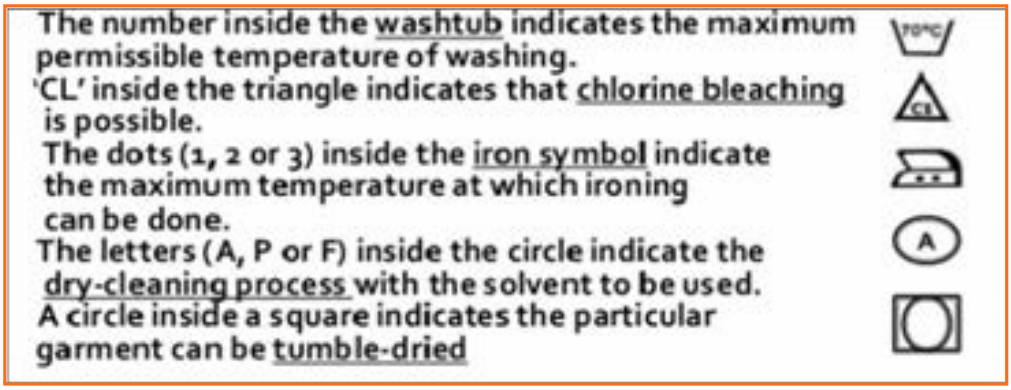


Fig.3.1.11: Care Labeling Systems

Japanese care labelling system: The Japanese care labelling system uses basic symbols and are very different from the other care labelling system.

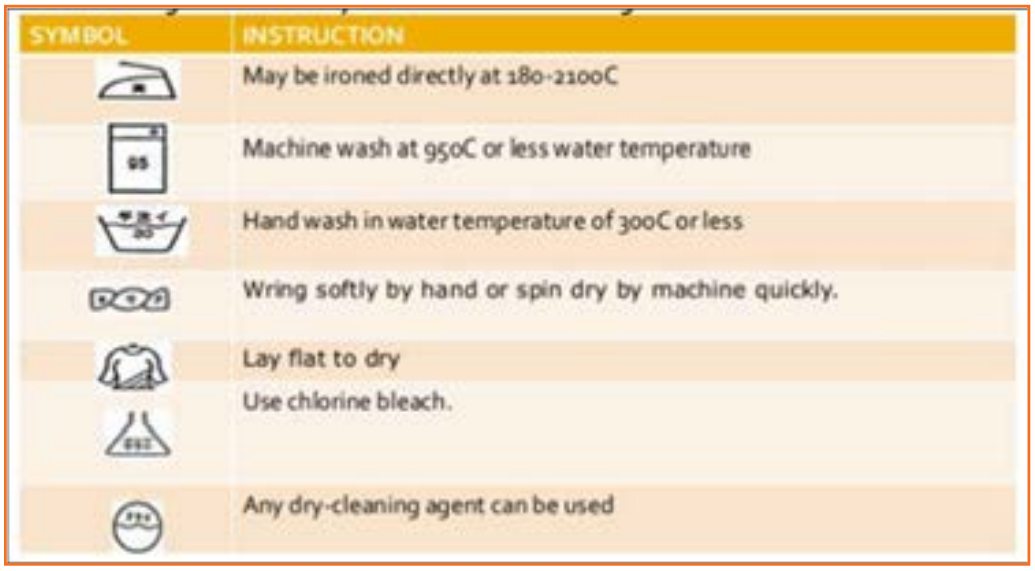


Fig.3.1.12: Japanese care labelling system

British care labelling system: The British care labelling system uses graphic symbols.

SYMBOL	INSTRUCTIONS
	Washtub indicates washing.
	Triangle indicates bleaching.
	Iron indicates ironing.
	Circle indicates dry-cleaning.
	Square indicates drying.
	Cross superimposed on any of the preceding five symbols indicates that such a treatment or process should be used.

Fig.3.1.13: British care labelling system

Canadian care labelling system: A revised Canadian General Standards Board (CGSB) standard providing new and improved industry symbols to help consumers clean and launder clothing safely was hot off the press in December 2003. The new standard (CAN/CGSB-86.1-2003) reflects the labelling practices being discussed by the North American Free Trade Agreement (NAFTA) and is also harmonized with the American and international standard on care labelling.

Washing Symbols

Symbol	Description
	Wash in commercial machine in water not exceeding 95°C, at normal setting.
	Wash in commercial machine in water not exceeding 95°C, at permanent press setting.
	Wash in domestic or commercial machine in water not exceeding 70°C, at normal setting.
	Wash in domestic or commercial machine in water not exceeding 60°C, at normal setting.
	Wash in domestic or commercial machine in water not exceeding 60°C, at permanent press setting.
	Wash in domestic or commercial machine in water not exceeding 50°C, at normal setting.
	Wash in domestic or commercial machine in water not exceeding 50°C, at permanent press setting.
	Wash in domestic or commercial machine in water not exceeding 50°C, at delicate/gentle setting.
	Wash in domestic or commercial machine in water not exceeding 40°C, at normal setting.

	Wash in domestic or commercial machine in water not exceeding 40°C, at permanent press setting.
	Wash in domestic or commercial machine in water not exceeding 40°C, at delicate/gentle setting.
	Wash in domestic or commercial machine in water not exceeding 30°C, at normal setting.
	Wash in domestic or commercial machine in water not exceeding 30°C, at permanent press setting.
	Wash in domestic or commercial machine in water not exceeding 30°C, at delicate/gentle setting.
	Wash gently by hand in water not exceeding 40°C.
	Wash gently by hand in water not exceeding 30°C.
	Wash in domestic or commercial machine at any temperature, at normal setting.
	Do not wash.

Fig.3.1.14: Washing symbols

Drying Symbols

Symbol	Description
	Tumble dry at high heat (not exceeding 75°C) at normal setting.
	Tumble dry at medium heat (not exceeding 65°C) at normal setting.
	Tumble dry at medium heat (not exceeding 65°C) at permanent press setting.
	Tumble dry at low heat (not exceeding 55°C) at permanent press setting.
	Tumble dry at a low heat (not exceeding 55°C) at delicate cycle.
	Tumble dry any heat.
	Tumble dry no heat/air dry.
	Do not tumble dry.
	After extraction of excess water, line dry/hang to dry.

	Hang up the soaking wet article to “drip” dry.
	After extraction of excess water, dry the article on a suitable flat surface.
	Dry in the shade (symbol added to line dry, drip dry, or dry flat).
	Do not dry. To be used with “Do not wash” symbol.

Fig.3.1.15: Drying symbols

Use of Dots For Defining Temperature of Water for Washing Symbol

Symbol	Definition	Description
	95°C	Near boil
	70°C	Extremely hot
	60°C	Very hot
	50°C	Hot
	40°C	Warm
	30°C	Cool

Fig.3.1.16: Use of Dots For Defining Temperature of Water for Washing Symbol

3.1.9 The Right Temperature to Wash Various Types of Fabrics

To check the care labels on all your clothes, is the golden rule because it is comprehensive enough to get an idea about the absolute maximum temperature the garment can be used in. It helps you avoid ruin if you haven’t appropriately identified the fabric on sight:

- Bright and dark colors prefer cooler, quicker washes. Higher temperatures encourage the loss of dye and fade black and bright clothes by opening up the fibres, so a warm or cool wash is your best bet. To set dye, try using white vinegar instead of detergent when you wash new clothes for the first time.
- The same goes for jeans. As long as your jeans aren’t muddy, cleaning denim at a cooler temperature (washing at 30 degrees or lower), and as little as possible, will help them last lengthier and look well.
- Use a low temperature, gentle cycle, and mild detergent for anything woolen. Technically, wool doesn’t shrink in a hot wash. Like most animal hair, wool components have cuticle scales. After the sheep are shorn, the process of turning the raw wool into a jumper or cardigan lifts these scales, creating tiny ridges on the fibers that leave them susceptible to ripping and becoming tangled with each other. Heat and agitation worsen the problem, causing the woolen clothes to shrink in a hot wash as the fibers adhere snugger together.
- High temperatures (over 40 degrees) aren’t always necessary. You can find out more about what temperature to wash white clothes, but just because they can generally stand higher temperatures, doesn’t mean they have to be washed at 60. Labels indicate the maximum temperature to wash clothes, not the precise number. In fact, according to the UK Energy Saving Trust, choosing to wash at 30 degrees rather than at high temperature uses around 40% less energy. High temperatures are good, however, for disinfecting towels and bedding.

UNIT 3.2: Washing Dyed and Printed Products

Unit Objectives

At the end of this unit, participants will be able to:

1. Familiarise with garment printing and dying.
2. Prevent fabric colour from bleeding, crocking and fading.

3.2.1 Garment Printing and Dying

Garment printing

It is a process of applying coloured patterns or designs on the fabric. This process is done by bonding the colour with the fibre, which ensure that the colour on the fabric is resistant to washing and friction.

Dyeing

Unlike garment printing wherein there is a defined pattern only in certain areas of the garment, dyeing Is a process where the whole fabric is uniformly covered with one colour.

Fig.3.2.1: Garment printing and dying

3.2.2 Fabric Bleeding, Crocking and Fading

Colour bleed

When the fabric gets wet the dye in the fabric leaches out of the fabric. This is a common occurrence with garments washed in the washing machine. Colour bleed causes colour transfer between the clothes in the washing machine.

Crocking

This is when colour from the fabric is rubbed on to the furniture or skin and normally happens due to bad quality dyes or excess of unattached dye left in the product, which has not properly adhered to the fabric.

Fading

It is also normally caused due to use of bad quality dyes or incorrect dyeing techniques. The fabric losses much of its dye and lacks depth of colour and looks very worn out.

3.2.3 Preventing Fabric Color Bleeding, Crocking and Fading

- Special care needs to be taken while washing dyed and printed products to prevent colour bleeding, crocking and fading.
- Sort clothes and ensure colored clothes are washed separately because the chemical fixers or mordant's used to hold the dye to the fiber can wear off and cause color bleed. It is important to always ensure similar colored clothes are washed together to prevent color run.
- Wash Printed/Dyed fabric with cool or cold water (30 Degrees C/ 86 Degrees F) to prevent color run. Hot water opens up the fibers of the fabric which enables the dye to escape from the fiber and the colors to run. There are different kind of detergent that are suitable to be used with cold water.
- Friction between clothes in the wash are also responsible for micro-breakage in the fibers resulting in the release of dye from the fabric. Friction can be minimized by washing heavy items such as jeans, in a load together.
- Using gentle or short washing cycles are also beneficial as it ensures minimum friction between the garments.
- Using of color catcher products, which are sheets designed to absorb loose dyes, is also a method of avoiding color transfer during wash.

3.2.4 How to Handle Breakdown of a Washing Machine

Pump & Pump Motor

To pump the water from the wash tub before and during the spin cycle, a drain pump is used on a washing machine. The pump may be belt driven, motor driven or have its own electric motor. A noise coming from the washing machine during or after the spin cycle can indicate that the drain pump has a restriction or has become defective.

Remove the front panel or cabinet to locate the pump and then operate the washer to verify that the pump is the source of the noise. Use caution as you are now exposed to moving parts and electrical circuits. If you can check that the noise is emanating from the pump, then disconnects the power from the washer and remove the inlet hose to the pump. Use a container to catch the water from the hose and pump. Inspect the pump impeller for signs of foreign objects that may be causing the noise or for damage to the impeller. Shot the impeller manually to verify that it is not seized or worn. Front load washers often use a self-contained electric drain pump and the motor may be worn or damaged and require the complete pump to be replaced. Remove any foreign objects or replace the worn or damaged pump, then carefully tighten the hose clamps and check for leaks before installing the cabinet or front panel

Drive Belt

The drive belt is used to connect the drive motor to the broadcast in some top load washers, or the drive motor to the wash basket in most front load washers. The drive belt is motor to the wash basket in most front load washers. The drive belt may be either a single V shaped belt or a multi-rib belt and is normally made of rubber, but may have a fabric covering. On front load washers the drive belt is usually a multi-ribbed belt and is intended to be installed for a tight fit. On belt driven top load washers, the drive belt is normally a V belt with a fabric covering to allow for some slippage or it may be a rubber covered belt with an idler pulley or other tensioning device to reduce the amount of friction created when the motor starts up used to connect the drive motor to the broadcast in some top load washers, or the drive.

Direct Drive Motor Coupling

Some top load washers use a direct drive motor coupling to transfer power from the motor to the transmission. The drive coupling attaches the motor to the transmission and consists of two plastic drive forks with a rubber coupling between them. One of the drive forks is attached to the drive motor shaft and the other is attached to the transmission input shaft. As the motor shaft rotates, the rubber coupling between the drive forks absorbs the torque to prevent the forks from breaking. Normal use will create wear on the coupling and eventually the drive forks may slip and cause a vibrating noise. If the transmission seizes or if the spin basket cannot turn freely, thenthe coupling may fail and again you may experience a vibrating noise. Most models will require you to remove the cabinet to access the drive coupler. Disconnect power from the appliance before attempting any repairs.

Shock Absorbers

All front-load washing machines have shock absorbers that are used to dampen the tub movement in the spin cycle. The shock absorbers or struts are attached to the base frame and to the outer tub and you will need to remove the front panel or the rear panel to access them. When shock absorbers weaken or become damaged, the machine will often make a loud banging sound during the spin cycle and if the symptom is not corrected, can lead to damage of other components. Inspect the shocks for signs of broken attachments, leaked fluids or a weakened dampening action and replace both shocks if worn. Remove power from the appliance before attempting this repair.

Tub Dampening Strap

Some models of top-load washers use tub dampening straps to cushion the movement of the tub during the spin cycle. There are four straps attached to the top of the tub and to each corner of the cabinet. These straps are made of rubber and can fail with normal use. When the straps become stretched or damaged, the tub may contact the cabinet during the spin cycle and create a loud banging sound. Unceasing large loads and excessive use will create more strain and cause premature failure of the straps. You will need to raise the top of the washing machine to access the straps and determine whether they are causing the noise you are hearing. If any of the bands appear visually damaged or worn, they will need to be replaced. We recommend replacing all four strapsat the same time.

Drive motor

The principal drive motor on a top load washer is used to operate the transmission, spin the wash basket and on some washers, to operate the pump as well. On front load washers, the drive motor operates a belt that drives the wash basket pulley. A common symptom associated with a failing drive motor is a humming or buzzing noise when the motor starts, sometimes accompanied by a slight burning smell. The drive motor has a thermal overload that will remove power from the windings when it senses this over current condition, and the motor will shut down. This could be caused by a driven component of the motor that has seized or by a defect in the motor itself. If the drive motor is unable to rotate freely on its own, it will need to be replaced. If it does appear to be working and has no visible signs of wear, there are typically two groups of parts that will prevent the drive motor from being able to start.

A faulty start capacitor can create this symptom. If your model uses a start capacitor, it will normally be located near the drive motor and will have a wire harness connected to the motor start switch. Check for loose wire connections to the capacitor and for any signs of corrosion or arcing. Inspect the capacitor for any cracks or swelling that would indicate a defect and use only the exact replacement part. Disconnect power from the appliance before attempting this repair. You should also check the mechanical components that the motor drives to insure that they are working properly. Make sure that the transmission and pump turn freely and that the wash basket will rotate in the spin direction as well. A seized bearing, defective pump or even an article of clothing caught between the tubs or in the pump can create a symptom of the drive motor buzzing and not starting.

Tub Bearing

Both top and front-load washing machines have tub bearings that lets the wash basket or inner tub to alternate freely. Top load washers normally have a bearing at the bottom or input of the transmission and another where the shaft attaches to the inner tub. Front load washers typically use two bearings to support the wash basket shaft and are located at the rear of the outer tub. The bearings are protected from the wash water by a tub seal. Regular use, prolonged exposure to harsh detergents and overload conditions can cause the bearing seal to break down, allowing water to reach the bearings and eventually causing them to fail.

If you are suffering a loud rumbling or roaring sound in the spin cycle, it is usually an indication of a failed tub bearing. Besides the noise you may also find excessive play with the inner tub or a water leak near the seal location. You will need to remove the inner tub or wash basket to gain access to the bearing and seal location. On top load washers, you will normally need to remove the transmission as well. Standard hand tools are normally all that is required to perform this repair but some models will require special tools to remove or replace the bearings and/or the tub seal. You should always replace the tub seal at the same time, especially when the bearings have been damaged by water or rust. Remove power from the appliance before attempting this repair and always wear the proper safety equipment.

Water Leaking

If your washer is leaky you should first check the hoses. There are several types of hoses found on a washing machine and the most common are the drain and fill hoses. The fill hoses connect the household supply to the water inlet valve and are normally located at the rear of the washer. Check to make sure that the threaded fittings are tightened securely and that the leak is not caused by the faucet. The drain hose is also located at the rear of the machine and may not be properly installed into the household drain. Verify that the leak is not caused by a restricted household drain that is backing up through the stand pipe. Never seal the drain hose opening in the stand pipe.

Washers will also have internal hoses that connect the inlet valve to the tub. A defect in this hose would create a leak during the fill cycle. Admission the tub inlet by lifting the main top or removing the cabinet and inspect the hoses for signs of abrasion or cracking. Also inspect the other components of the water inlet system such as a siphon break or tub injection assembly for signs of a leak. Some front load washers will inject water into the tub through the detergent dispenser and this area will need to be inspected if the leak occurs during the fill portion of the cycle. If the leak occurs during the wash portion of the cycle then the tub to drain pump hose may be the problem. Check for loose or corroded clamps, and cracked or perforated hoses. Removal of the front or rear panels will be required to access this area and some models may require removing the complete cabinet.

Does'nt Start

The lid switch on a top load washing machine is a safety device intended to prevent the motor circuit from operating when the lOn some models, the water inlet valve circuit is controlled as well. If the lid switch fails, the washer may not start. The lid switch is normally located beneath the main top with a projection on the lid or a pin attached to the lid that will actuate the switch when the lid is closed. Verify that the switch is being activated mechanically and that any levers or actuators are not damaged or sticking. If the switch is being activated but there is no power being supplied to the motor or water valve circuits, then the switch may be defective.

Disconnect power from the appliance and remove the wires from the switch. You can then check the switch for continuity with a multi-meter. We strongly recommend that you DO NOT bypass a lid switch as it is an important safety feature and serious injury could result.

Resources

Scan the QR code or click the link to access the videos or e-book.

Description	QR Code
Different Washing Techniques	https://youtu.be/BCFrp6Js4Hg
Garment wash care labels	https://youtu.be/wSf_AcUyv0M

Exercise

1. Care label indicates different types of care instruction about the garments such as Washing, Bleaching, Drying, Laundering and Ironing.
   a) True
   b) False
2. Stone Wash is used to provide a unique faded appearance to the garments, especially denims.
   a) True
   b) False
3. Cycle uses no heat and is generally used for making the garments feel soft and refreshing.
   a) Blow dry
   b) Air dry
   c) Press
   d) None of the above
4. Temperature for washing depends upon
   a) Fibre type
   b) Dye
   c) Both (a) and (b)
   d) None of the above

5. _____causes colour transfer between the clothes in the washing machine.
   a) Crocking
   b) Colour Bleeding
   c) Fading
   d) None of the above

4. Maintain Workarea, Tools and Machines

Unit 4.1 - Maintain Workarea, Tools and Machines

AMH/N0102

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Maintain hazard free work environment.
2. Maintain tools.
3. Adopt safe work practices.
4. Minimize waste.
5. Know different Cleaning Substances.

UNIT 4.1: Maintain Workarea, Tools and Machines

Unit Objectives

At the end of this unit, participants will be able to:

1. Maintain hazard free work environment.
2. Maintain tools.
3. Adopt safe work practices.
4. Minimize waste.
5. Know different Cleaning Substances.

4.1.1 Maintenance of Washing Machine

Routine maintenance maximizes operating efficiency and minimizes downtime. The maintenance procedures described below will prolong the life of the machine and help prevent accidents. Daily, weekly, monthly, and quarterly checklists are provided at the end of this section. Laminate the checklists to preserve them for repeated copying. Operators and technicians are encouraged to add checks specific to their washing machine's particular application. Where possible, space is provided on the checklists for this purpose. The following maintenance procedures must be performed regularly at the required intervals.

Daily

- Beginning of Day:
  - » Inspect water inlet valve hose connections on the back of the washing machine for leaks.
  - » Inspect steam hose connections for leaks (where applicable).
  - » Verify that insulation is intact on all external wires and that all connections arc secure. If bare wire is evident, call a service technician.
  - » Check door interlock before starting operation:
    - ◊ Attempt to start the washer with the door open. The washer should not start with the door open.
    - ◊ Close the door without locking it and attempt to start the washer. The washer should not start with the door unlocked.
    - ◊ Close and lock the door and start a cycle. Attempt to open the door while the cycle is in progress. The door should not open.

If the door lock and interlock are not functioning properly, call a service technician.

- • End of Day
  - » Clean the door gasket of residual detergent and all foreign matter.
  - » Clean automatic supply dispenser and lid inside and out with mild detergent. Rinse with clean water.

- » Clean machine's top, front, and side panels with mild detergent. Rinse with clean water.
- » Leave loading door open at the end of each day to allow moisture to evaporate.

Unload the washing machine promptly after each completed cycle to prevent moisture build-up. Leave loading door open at the end of each completed cycle to allow moisture to evaporate.

Weekly

- Check the washer-extractor for leaks.
  - » Start an unloaded cycle to fill the washer- extractor.
  - » Verify that door and door gasket do not leak.
  - » Verify that the drain valve is operating and that the drain system is free from obstruction. If water does not leak out during the prewash segment, drain valve is closed and functioning properly.

Monthly

- Disconnect power to the washer-extractor at its source before performing the monthly maintenance procedures.
- Each month OR after every 200 hours of operation, lubrication of bearing has to be done
- Remove back panel and check overflow hose and drain hose for leaks.
- Unlock the hinged lid and check the supply dispenser hoses and hose connections.
- Clean inlet hose filter screens:
  - » Turn water off and allow valve to cool, if necessary.
  - » Unscrew inlet hose and remove filter screen.
  - » Clean with soapy water and reinstall. Replace if worn or damaged.
- Remove back panel and check overflow hose and drain hose for leaks.
- Tighten motor mounting bolt locknuts and bearing bolt locknuts, if necessary.
- Use compressed air to clean lint from motor.
- Clean interior of washer-extractor, both basket and shell, by wiping with a water-soaked sponge or cloth.
- Use compressed air to ensure that all electrical components are free of moisture and dust.

Quarterly

NOTE: *Disconnect power to the washer-extractor before performing the quarterly maintenance procedures.*

- Tighten door hinges and fasteners, if necessary.
- Tighten anchor bolts, if necessary.
- Verify that the drain motor shield is in place and secure.
- Check all painted surfaces for bare metal
  - » If bare metal is showing, paint with primer or solvent-based paint.
  - » If rust appears, remove it with sandpaper or by chemical means. Then paint with primer or solvent-based paint.
- Clean steam filter, where applicable.
  - » Turn off steam supply and allow time for the valve to cool.

» Unscrew nut.

» Remove element and clean.

» Replace element and nut.

Daily Preventive Maintenance Checklist

Machine _____ Operator _____	Week of: _____ Days						
Checks	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Observe All Safety Warnings!							
Beginning of Day							
1. Inspect water inlet valve hose connections on the back of the washer-extractor for leaks.							
2. Inspect steam hose connections for leaks (where applicable).							
3. Verify that insulation is intact on all external wires and that all connections are secure.							
4. Check door lock and interlock before starting operation:							
a. Attempt to start the washer with door open.							
b. Close the door without locking it and attempt to start the washer.							
c. Close and lock the door, start a cycle, and attempt to open the door while the cycle is in progress.							
5.							
End of Day							
1. Clean the door gasket of all foreign matter.							
2. Clean automatic supply dispenser and lid.							
3. Clean the washer's top, front, and side panels.							
4. Leave loading door open at the end of each day to allow moisture to evaporate.							
5.							
6.							

Fig.4.1.1: Daily preventive maintenance checklist

Weekly Preventive Maintenance Checklist

Machine _____	Month _____				
Operator _____	Week Ending:				
Checks	/	/	/	/	/
Observe All Safety Warnings!					
1. Check the washer-extractor for leaks:					
a. Start an unloaded cycle to fill the washer-extractor.					
b. Verify that door and door gasket do not leak.					
c. Verify that the drain valve is operating.					
2.					
3.					
4.					
5.					
6.					
7.					

Fig.4.1.2: Weekly preventive maintenance checklist

4.1.2 Maintaining Hazard Free Work Environment

Effective housekeeping is key in preventing workplace hazards and help in the completion of a job in a safe and proper manner. Poor housekeeping is the chief cause of hazardous mishaps and injuries. Paper, clutter, debris, spills might sound like normal occurrences but can lead to more serious health and safety hazards if taken for granted.

Housekeeping does not entail just cleanliness of the workspace. It also includes keeping all objects organized, maintaining surfaces free from slip and trip hazards and removing all sorts of used and disposable waste items. These waste items might also include paper waste which can cause fires. Layout details like maintenance, adequacy of storage facilities and aisle marking are crucial in this regard as well. Accident and fire prevention can be taken care of in this aspect.

Effective housekeeping is an ongoing operation: it is not a hit-and-miss cleanup done occasionally. Periodic "panic" cleanups are costly and ineffective in reducing accidents.

Why should we pay attention to housekeeping at work?

Effective housekeeping can eliminate some workplace hazards and help get a job done safely and properly. Poor housekeeping can frequently contribute to accidents by hiding hazards that cause injuries. If the sight of paper, debris, clutter and spills is accepted as normal, then other more serious health and safety hazards may be taken for granted.

What is the purpose of workplace housekeeping?

Poor housekeeping can be a cause of accidents, such as:

- Tripping over loose objects on floors, platforms and stairs
- Being hit by falling objects
- Slipping on greasy, dirt and wet
- Surfaces
- Striking against projecting, poorly stacked items or misplaced material

4.1.2.1 Purpose and Benefits of Maintaining Hazard-free Workplace

Poor housekeeping or ill-maintained workplace can result in accidents like:

- Tripping over loose objects on floors, stairs and platforms
- Being hit by falling objects
- Slipping on greasy, wet or dirty surfaces
- Striking against projecting, poorly stacked items or misplaced material
- Cutting, puncturing, or tearing the skin of hands or other parts of the body on projecting needles, wire or steel strapping

To avoid these hazards, a workplace must "maintain" order throughout a workday. Although this effort requires a great deal of management and planning, the benefits are many

Few benefits of maintaining hazard-free work place are:

- Reduced handling to ease the flow of materials
- Fewer tripping and slipping accidents in clutter-free and spill-free work areas
- Decreased fire hazards
- Lower worker exposures to hazardous substances (e.g. broken needles, dusts, vapours)
- Better control of tools and materials, including inventory and supplies
- More efficient equipment clean-up and maintenance
- Better hygienic conditions leading to improved health
- More effective use of space
- Reduced property damage by improving preventive maintenance
- Improved morale
- Improved productivity (tools and materials will be easy to find)

4.1.2.2 Planning Workplace Maintenance

A good maintenance program plans and manages the orderly storage and movement of materials from point of entry to exit. It includes a material flow plan to ensure minimal handling. The plan also ensures that work areas are not used as storage areas by having workers move materials to and from work areas as needed. Part of the plan could include investing in extra bins and more frequent disposal.

Housekeeping order is "maintained" not "achieved." Cleaning and organization must be done regularly, not just at the end of the shift. Integrating housekeeping into jobs can help ensure this is done. A good housekeeping program identifies and assigns responsibilities for the following:

- Clean up during the shift
- Day-to-day clean-up
- Waste disposal
- Removal of unused materials
- Inspection to ensure clean-up is complete

4.1.3 Maintaining Tools and Equipment

Maintenance of tools and equipment used in apparel manufacture like needles, threads, scissors, fabric etc. is part of the job responsibility of the Washing Machine Operator. Even the best quality tools and equipment cannot last long if not properly taken care of. Few key points in tool and equipment maintenance are:

- **Proper Storage:** All tools and equipment should be stored properly in their designated places. Good organization is not just about saving time when you're looking for the proper tool, or even just about saving space in your garage or shed. Good organization can go a long way toward keeping tools in proper working order for longer. Do not leave tools like needles, scissors, hoops scattered around or lying on the work station. After finishing the work, all tools and equipment should be placed in their designated places
- **Regular Maintenance:** All tools that require lubricant should be regularly lubricated like scissors and hoop locks. Also, regular checks should be done to ensure the tools are working properly and if required repairs should be carried out
- **Correct Usage:** Most tools are designed to perform specific functions. Using the wrong tool for a job can pose a safety hazard to you and those around you. By using your equipment incorrectly, you can make the tool less effective for its intended use. For instance, proper needles should be used for embroidering depending on the type of stitches and fabrics used
- **Cleaning tools after use:** Tools like needles, scissors, hoops etc. should be properly cleaned after every use. This can be simply done by wiping them with a clean piece of cloth.

4.1.4 Garment Waste

"The two shocking facts about garments"

- Over 70% of the world's population use second hand clothes.
- The average lifetime of a garment is about three years.

What is Waste?

- Waste is an unwanted or undesired material or substance.

- It is also referred to as rubbish, trash, garbage, or junk depending upon the type of material and the regional terminology.
- In living organisms, waste relates to unwanted substances or toxins that are expelled from them.

Waste Management

- This the human control of the collection, treatment and disposal of different wastes. This is in order to reduce the negative impacts waste has on environment and society.
- Waste is directly linked to the human development, both technologically and socially.
- The compositions of different wastes have varied over time and location, with industrial development and innovation being directly linked to waste materials.
- Examples of this include plastics and nuclear technology. Some components of waste have economical value and can be recycled once correctly recovered.

Biodegradable Waste

- Such as food waste or sewage, is broken down naturally by microorganisms either aerobically or an aerobically.
- If the disposal of biodegradable waste is not controlled it can cause a number of wider problems including contributing to the release of greenhouse gases and can impact upon human health via encouragement of pathogens.
- It is difficult to define specifically what a waste is. Items that some people discard have value to others.
- It is widely recognized that waste materials are a valuable resource, whilst there is debate as to how this value is best realized. Governments need to define what waste is in order that it can be safely and legally managed.
- Different definitions need to be combined in order to ensure the safe and legal disposal of the waste.

Negative Impact on Environment

- Waste pollution is considered a serious threat by many and can broadly be defined as any pollution associated with waste and waste management practices.
- Typical materials that are found in household waste, and which have specific environmental impacts, include biodegradable wastes, batteries, aerosols, oils, acids and fluorescent tubes.

Source of Garment Waste

- Although the majority of textile waste originates from household sources, waste textiles also arise during yarn and fabric manufacture, garment-making processes and from the retail industry.
- These are termed post-industrial waste, as opposed to the post-consumer waste which goes to jumble sales and charity shops.
- Together they provide a vast potential for recovery and recycling.

History on recycling of garment wastes

- Textile recycling originated in the Yorkshire Dales about 200 years ago.
- These days the 'rag and bone' men are textile reclamation businesses, which collect textiles for reuse (often abroad), and send material to the 'wiping' and 'flocking' industry and fibers to be reclaimed to make new garments.
- Textiles made from both natural and man-made fibers can be recycled.
- It is estimated that more than 1 million tones of textiles are thrown away every year, with most of this coming from household sources. Textiles make up about 3% by weight of a household bin. At least 50% of the textiles we throw away are recyclable.

Recycling of Garment Waste

- Recycling of waste raw materials left by garment factories has emerged as a good income generating source for many people in recent times.
- As the informal sector requires small investment, it attracts a good number of investors who are employing thousands of people, mostly from under-privileged classes.
- The garment leftovers, called jhoot by the people involved in the trade, are virtually turned into useful materials.
- Every bit and pieces of waste raw materials starting from cut-pieces of clothes, zippers, buttons, thread, elastic fasteners, used plastic packets, broken cloth hangers, empty bobbins to rejected pants, shirts and t-shirts are sold from the garment factories.

Stages of recycling

- First stage of recycling starts with sorting, which is usually done by colors, type of fabric and its condition.
- The usable clothes are bought by small garment factories with one or two machines reproducing clothes with it. Children's frocks, skirts, shirts, pyjamas, pillow cases are produced with this usable portion of the wastage.
- These reproduced items are mostly sold in street side stalls all around the city. "Because of the jhoot trade the poor segment of the society can buy clothes at cheaper prices."

Use of garment wastes

- The unusable parts and extremely shredded clothes are recycled into waste cotton.
- Mattress, pillows, cushions, seat stuffing and padding in cars, public buses and rickshaws are usually done with these recycled clothes and processed cotton.
- Even bandages are being reproduced with leftover white cotton fabrics.
- While buttons, zippers, elastic fastener, hangers and plastic bags are resold to mini garment accessory sellers.
- Buttons, zipper, elastics fasteners are mostly purchased by local tailors, said an accessory seller.

Environmental and Economic benefits of Garment Recycling

- Reduces the need for landfill space.
- Textiles present particular problems in landfill as synthetic (man-made fibres) products will not decompose, while woollen garments do decompose and produce methane, which contributes to global warming.
- Reduces pressure on virgin resources.
- Aids the balance of payments as we import fewer materials for our needs.

4.1.5 Cleaning Material, Cleaning Equipment and its Maintenances

- **Cleaning agents** are substances, usually liquids, powders, sprays and granules that are used toremove dirt, including dust, stains, bad smells and clutter on surfaces.
- **Acidic washing** agents are mainly used for removal of inorganic deposits like scaling to unblock clogged pipes by dissolving greases, proteins and even carbohydrate-containing.
- **Alkaline washing agents** contain strong bases like sodium hydroxide and/or potassium hydroxide. The alkali also dissolves grease, oils, fats, and protein-based deposits.
- **Neutral washing agents** are pH-neutral and based on non-ionic surfactants that disperse different types of dirt.

- **Degreaser** Cleaning agents specially made for removal of grease are called degreasers. The solvents have a dissolving action on grease and similar dirt. The solvent-containing degreaser may have an alkaline washing agent added to a solvent to promote further degreasing. Degreasing agents may also be made solvent-free based on alkaline chemicals and/or surfactants.

Fig.4.1.3: Cleaning Material

Common cleaning agents

- Water
- Ammonia
- Borax
- Sodium bicarbonate
- Ethanol or Methanol Solutions
- Various chlorine compounds

The cleaning materials, which are developed from the above are available in the market with various trade names

- Detergent
- Parts cleaning
- Washing
- Parts washer
- Panel edge staining

Fig.4.1.4: Cleaning Equipments

Fig.4.1.5: Cleaning Equipments

The above cleaning materials are supplied with instructions for use, which should be followed for deriving the maximum benefit.

Cleaning in the small factories like sweeping, mopping etc; is carried out manually. Kit for manual housekeeping is shown left:

In bigger companies, the equipments shown below are used for cleaning activity. They reduce the efforts in cleaning as well as improve the quality of cleaning. The trainer will explain to you the safe operation of such equipment. The equipment should be maintained as per the instruction manuals provided by the manufacturer.

4.1.6 Inspection and Selection of Cleaning Method

It is necessary to carry out inspection of the premises and select the materials for cleaning and equipment accordingly.

The points to be inspected:

- Area to be cleaned
- Number of machines housed
- Accessories around the machine
- Oil and grease leakage points
- Volume of waste material generated
- Obstructions for cleaning
- Location of chimneys and sky lights
- Height of the places to be cleaned
- Any particular material predominant in the area like carbon dust
- Possibility of reaction of the cleaning agents with the raw materials

4.1.7 Cleaning Equipments

Manual Equipment

Cleaning Equipment	Types	Uses
Brushes	Hard Brushes	Hard brushes have bristles that are fairly stiff and well-spaced out.They are most suitable for removal of heavy soil and litter from carpels and for cleaning rough surfaces. –Example: deck scrubber for floors
	Soft Brushes	Soft brushes have bristles that are fairly flexible and set close together. They help to remove loose soil and litter on hard and smooth surfaces. Such brushes may be designed to dust carpets and furniture, especially those that are made of cane and wicker e.g. –upholstery brush
Broom	Soft bristled broom	These brooms are made of corn-fiber, grass and are used for smooth floors.
	Hard broom	These brooms are made of coconut fiber and are used for coarse surface, especially outdoors.
	Wall broom	These are ceiling brooms called Turk's head. These brooms are used to remove cobwebs or dust from ceiling, and high edges.
	Box sweeper	These are also called as carpet sweepers and are used for sweeping up the dust from smooth floor coverings such as rugs and carpets. A box sweeper consists of a friction brush that revolves when the equipment is pushed manually over the carpet or floor. The dust gets collected into the built in dust pans.

Mop	Dry mop	Consist of acrylic, nylon, or polyester strands fixed to a backing stretched over a metal frame. These are used for holding the dust by sweeping.
	Wet mops	Consist of cotton strands fixed to a length of cotton fabric which is in turn inserted into a metal flat stock.
Cloths	Swab	These are loosely woven cotton cloths, absorbent material and are used for damp wiping of floor surfaces. Also used for sanitary fittings, bath tubs and wash basins.
Containers	Scrim	These are loosely woven linen material resembling fine sack cloth, highly absorbent and lint free in nature, used for cleaning mirrors and windows.
	Buckets	Plastic or galvanized iron buckets are used in different areas of housekeeping while washing of floor, scrubbing of floor, etc.
	Dustpan	These are used in conjunction with a broom or brush for gathering dust. They are made of plastic or metal. They should be emptied after.
	Dust bins	These are used to collect waste from guest rooms and it may be made of plastic, metals, or wood. This should be emptied and wiped daily.
	Sani-bins	These are metal or plastic bins with lid. They are found in toilets for collection of soiled sanitary towels. They should be lined with plastic or paper bags for easy cleaning and must be wiped daily for the reasons of hygiene.
	Hand caddy	Also called cleaner's boxes, made of wood or metal or plastic, used by the room attendant for carrying cleaning supplies from room to room while guest room cleaning is done.
	Mop-wringer trolley	This piece of equipment consists of mop and one or twin buckets with an attached wringer all mounted on a trolley with wheels. It may have a provision for holding cleaning agent as well as a trash bag.

Fig.4.1.6: Manual Equipment

Mechanical Equipment

Cleaning Equipment	Types	Uses
Vacuum Cleaners/ suction cleaners	Dry vacuum cleaners	These are used for removing dust and small pieces of debris from the floors, upholstery, furnishings walls and ceilings. It comes with different flexible attachment such as crevice nozzle, upholstery cleaning brush, floor cleaning brush, etc.
	Wet and dry vacuum	These are extremely useful for housekeeping operations. They can pick up spills and excess water when it is used on a wet mode. When on a dry mode, they help to remove the dust and debris. In hotels, they are used in large areas when they are scrubbed.
	Large tank-type vacuum cleaners	These are also called as industrial vacuum cleaners and are meant for dry and wet pick up or both. The waste water is squeezed by a rubber attached to it through the nozzle which travels back into the tank. They are ideal for cleaning large working area
High Pressure Washers		These types of equipment are designed to remove soil from the surface with the help of water and steam subjected to high pressure. Water under pressure dislodges the dirt from the surface.

Scrubbing/Polishing Machine		Scrubbing can be done with the help of the bristle attached to the machine and is normally used for large areas.

Fig.4.1.7: Mechanical Equipment

4.1.8 Some Signs of Poor Housekeeping

There are many signs of poor housekeeping. You may recognize some of these in your own workplace:

- Cluttered and poorly arranged work areas;
- Untidy or dangerous storage of materials (for example, materials stuffed in corners; overcrowded shelves);
- Dusty, dirty floors and work surfaces;
- Items that are in excess or no longer needed;
- Blocked or cluttered aisles and exits;
- Tools and equipment left in work areas instead of being returned to roper storage places;
- Broken containers and damaged materials;
- Overflowing waste bins and containers;
- Spills and leaks

4.1.9 How to Improve Housekeeping in Your Workplace

Good housekeeping requires effort and teamwork, but it's worth it. Here are some general pointers:

- Set housekeeping standards. Make sure they are clear, objective and attainable. Standards should make work easier, safer and healthier. It is best to involve employees when setting standards.
- Measure how well the standards are met. (Remember what gets measured gets done.)
- Use checklists to help you to systematically measure housekeeping.
- Provide positive feedback. Let employees know how well they are doing and how to improve.
- Encourage housekeeping as a way of life - not just a special activity when visitors are coming.

4.1.10 Some Recommended Housekeeping Practices

- Follow safe work procedures and the requirements of the law.
- Keep work areas clean.
- Keep aisles clear.
- Keep exits and entrances clear.
- Keep floors clean, dry and in good condition.
- Vacuum or wet sweep dusty areas frequently.

- Stack and store items safety.
- Store all work materials (for example, paper products, flammable liquids, etc.) in approved, clearly labelled containers in designated storage areas only.
- Use proper waste containers.
- Keep sprinklers, fire alarms and fire extinguishers clear.
- Clean up spills and leaks of any type quickly and properly.
- Clean and store tools, items and equipment properly.
- Fix or report broken or damaged tools, equipment, etc.
- Keep lighting sources clean and clear.
- Follow maintenance requirements.

4.1.11 Tips

- Inspect the area while taking into account various surfaces
- Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain
- Ensure that the cleaning equipment is in proper working condition
- Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person
- Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces
- Inform the affected people about the cleaning activity
- Display the appropriate signage for the work being conducted
- Ensure that there is adequate ventilation for the work being carried out
- Wear the personal protective equipment required for the cleaning method and materials being used
- Use the correct cleaning method for the work area, type of soiling and surface
- Carry out cleaning activity without disturbing others
- Deal with accidental damage, if any, caused while carrying out the work
- Report to the appropriate person any difficulties in carrying out your work
- Identify and report to the appropriate person any additional cleaning required that is outside one's responsibility or skill
- Ensure that there is no oily substance on the floor to avoid slippage
- Ensure that no scrap material is lying around
- Maintain and store housekeeping equipment and supplies
- Follow workplace procedures to deal with any accidental damage caused during the cleaning process
- Ensure that, on completion of the work, the area is left clean and dry and meets requirements

- Return the equipment, materials and personal protective equipment that were used to the right places making sure they are clean, safe and securely stored
- Dispose the waste garnered from the activity in an appropriate manner
- Dispose of used and un-used solutions according to manufacturer's instructions, and clean the equipment thoroughly

Resources

Scan the QR code or click the link to access the videos or e-book.

Description	QR Code
Housekeeping At Workplace	https://youtu.be/g-TO1ufPdrE

Industry Visit

The purpose of visiting an apparel production unit is to get hands on knowledge about various processes involved in the work of an Washing Machine Operator. During the visit you have to interact with Washing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction with apparel production team. When you go to an apparel production unit, you should:

- Know about the production system.
- Understand the machine safety and maintenance rules of industry.
- Analyze how personnels:
  - » Maintain machines properly.
  - » Maintain tools and equipments and handle them safely and use materials to minimize waste.
  - » Work in a comfortable position with the correct posture.
  - » Dispose of waste safely in the designated location.
  - » Store cleaning equipment safely after use.
- Ask questions to Washing Machine Operators/supervisors if you have any query.

Exercise

1. Effective housekeeping results in:
   a) Reduced handling to ease the flow of materials
   b) Fewer tripping and slipping accidents in clutter-free and spill-free work areas
   c) Decreased fire hazards
   d) All of the above
2. A good housekeeping schedule includes the following:
   a) Clean up before the shift
   b) Clean up during the shift
   c) Clean up after the shift
   d) All of the above
3. Waste is:
   a) Waste is an unwanted or undesired material or substance.
   b) It is also referred to as rubbish, trash, garbage, or junk depending upon the type of material and the regional terminology.
   c) In living organisms, waste relates to unwanted substances or toxins that are expelled from them.
   d) All of the above
4. Describe the inspection and selection of cleaning method in detail.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

NCVET
कौशल गुणवत्ता प्रगति

Skill India
कौशल भारत-कुशल भारत

सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP

N·S·D·C
RE IMAGINE FUTURE

5. Maintain Health, Safety and Security in the Washing Department & Gender Sensitivity Requirements

APPAREL MADE-UPS & HOME FURNISHING SECTOR SKILL COUNCIL

Unit 5.1 – Maintain Health, Safety and Security at Work Place

Unit 5.2 – First Aid & CPR

Unit 5.3 – Sensitivity towards People with disability and Gender Equality

AMH/N1812

Key Learning Outcomes

At the end of this unit, participants will be able to:

1. Comply with health and safety related instructions applicable to the workplace.
2. Use and maintain personal protective equipment as per protocol.
3. Maintain a healthy lifestyle and guard against dependency on intoxicants.
4. Follow environment management system related procedures.
5. Identify and correct if possible) malfunctions in machinery and equipment.
6. Report any service malfunctions that can not be rectified.
7. Store materials and equipment in line with manufacturer's and organizational requirements.
8. Safely handle and move waste and debris.
9. Minimize health and safety risks to self and others due to own actions.
10. Seek clarifications, from supervisors or other authorized personnel in case of perceived risks.
11. Monitor the workplace and work processes for potential risks and threats.
12. Carryout periodic walk-through to keep work area free from hazards and obstructions, if assigned.
13. Report hazards and potential risks/threats to supervisors or other authorized personnel.
14. Participate in mock drills/ evacuation procedures organized at the workplace.
15. Undertake first aid, fire-fighting and emergency response training, if asked to do so.
16. Take action based on instructions in the event of fire.
17. Follow organization procedures.
18. Analyze the First Aid & CPR.
19. Follow COVID 19 Safety protocol.

UNIT 5.1: Maintain Health, Safety, and Security at Work Place

Unit Objectives

At the end of this unit, participants will be able to:

1. Comply with health and safety related instructions applicable to the workplace.
2. Use and maintain personal protective equipment as per protocol.
3. Maintain a healthy lifestyle and guard against dependency on intoxicants.
4. Follow environment management system related procedures.
5. Identify and correct if possible) malfunctions in machinery and equipment.
6. Report any service malfunctions that cannot be rectified.
7. Store materials and equipment in line with manufacturer's and organizational requirements.
8. Safely handle and move waste and debris.
9. Minimize health and safety risks to self and others due to own actions.
10. Seek clarifications, from supervisors or other authorized personnel in case of perceived risks.
11. Monitor the workplace and work processes for potential risks and threats.
12. Carryout periodic walk-through to keep work area free from hazards and obstructions, if assigned.
13. Report hazards and potential risks/threats to supervisors or other authorized personnel.
14. Participate in mock drills/ evacuation procedures organized at the workplace.
15. Undertake first aid, fire-fighting and emergency response training, if asked to do so.
16. Take action based on instructions in the event of fire.
17. Follow organization procedures.
18. Follow COVID 19 Safety protocol.

5.1.1 Introduction

Features in garment industry that could be improved to prevent injuries include; communication, involvement of employees in decision making, education and training of employees and management on prevention strategies, and the ergonomic conditions at the plant.

The clothing industry is generally seen as a safe place to work, and when compared to other industries, there are relatively few serious accidents in clothing plants. The hazards we face are different. The major health risks in this industry do not arise from immediate, potentially fatal hazards. Instead, the risks that clothing workers face come from more subtle hazards whose effect accumulates over time.

Fig.5.1.1: Body Posture

Washing Machine Operator face a much higher risk of muscle injury and pain than those working in other sectors. The frequency of neck and shoulder injuries is shown to increase largely for employees with their increasing years of employment. Repetitive injuries equaling those of data entry operators and secretaries have been recorded in sewing machine operators. As a result, the operators' long term health is affected as well.

Fig.5.1.2: Working with washing machine

Because of poor workstation design and chairs, and organizational factors like the piecework system have heightened this risk. Therefore, factors like posture, vibration, repetition and force have had increasingly adverse effects on the operator workforce in this industry.

Apart from workstation based injuries, it also the neglect of safety protocols and empowerment of workforce that causes this hike in injuries. Following good housekeeping and ensuring an active role of the top management and a special regard for the greater seniority of the of the workforce can be good preventative measures.

The garment industry should focus and develop good working conditions to reduce the injuries created to their workers since there is ample room for ergonomic improvements in the clothing industry, asserts M Muhundhan .

In India, the readymade garment industry had its beginning during the first half of the 20 th century and has witnessed impressive growth during the last four decades. It is reported to be the second highest contributor

5.1.1.1 Precautions while using a Washing Machine

Certain precautions are to be taken by the washing machine operators while working. These precautions are very important as they ensure that the safety of the operator is maintained and the machine is also used in optimal conditions. Some of the precautions are:

- Don not in any circumstances, open a running machine or put your hands inside
- Prior to operating the machine, verify that all warning signs are present and legible. Missing or illegible signs must be replaced immediately. Make certain that spares are available.
- Check door interlock before starting operation of the machine:
  - » Attempt to start the machine with the door open. The machine should not start with the door open.
  - » Close the door without locking it and attempt to start the machine. The machine should not start with the door unlocked.
  - » Close and lock the door and start a cycle. Attempt to open the door while the cycle is in progress. The door should not open. If the door lock and interlock are not functioning properly, call a service technician.
- Do not attempt to operate the machine if any of the following conditions are present:
  - » The door does not remain securely locked during the entire cycle.
  - » Excessively high water level is evident.
  - » Machine is not connected to a properly grounded circuit.

Do not bypass any safety devices in the machine.

5.1.1.2 Safe Operating Environment for a Washing Machine

Safe operation requires an appropriate operating environment for both the operator and the machine. Some safe operating conditions are detailed below:

Environmental Conditions

- **Ambient Temperature:** Water in the machine will freeze at temperatures of 32°F (0°C) or below. Temperatures above 120°F (50°C) will result in more frequent motor overheating and, in some cases, malfunction or premature damage to solid state devices that are used in some models. Special cooling devices may be necessary. Water pressure switches are affected by increases and decreases in temperature. Every 25°F (10°C) change in temperature will have a 1% effect on the water level.
- **Humidity:** Relative humidity above 90% may cause the machine's electronics or motors to malfunction or may trip the ground fault interrupter. Corrosion problems may occur on some metal components in the machine. If the relative humidity is below 30%, belts and rubber hoses may eventually develop dry rot. This condition can result in hose leaks, which may cause safety hazards external to the machine in conjunction with adjacent electrical equipment.
- **Ventilation:** The need for make-up air openings for such laundry room accessories as dryers, ironers, water heaters, etc., must be evaluated periodically. Louvers, screens, or other separating devices may reduce the available air opening significantly**.**
- **Elevation:** If the machine is to be operated at elevations of over 3280 feet (1000 m) above sea level, pay special attention to water levels and electronic settings (particularly temperature) or desired results may not be achieved.

- **Chemicals:** Keep stainless steel surfaces free of chemical residues.
- **Water Damage:** Do not spray the machine with water. Short circuiting and serious damage may result. Repair immediately all seepage due to worn or damaged gaskets, etc.

Machine Location

- **Foundation:** The concrete floor must be of sufficient strength and thickness to handle the floor loads generated by the high extract speeds of the machine. Refer to Installation manual.
- **Service/Maintenance Space:** Provide sufficient space to allow comfortable performance of service procedures and routine preventive maintenance.

Input and Output Services

- **Water Pressure:** Best performance will be realized if water is provided at a pressure of 30 - 85 psi (2.0 - 5.7 bar). Although the machine will function properly at lower pressure, increased fill times will occur. Water pressure higher than 100 psi (6.7 bar) may result in damage to machine plumbing. Component failure(s) and personal injury could result.
- **Steam Heat (Optional) Pressure:** Best performance will be realized if steam is provided at a pressure of 30 - 80 psi (2.0 - 5.4 bar). Steam pressure higher than 125 psi (8.5 bar) may result in damage to steam components and may cause personal injury. For machines equipped with optional steam heat, install piping in accordance with approved commercial steam practices. Failure to install the supplied steam filter may void the warranty.
- **Drainage System:** Provide drain lines or troughs large enough to accommodate the total number of gallons that could be dumped if all machines on the site drained at the same time from the highest attainable level. If troughs are used, they should be covered to support light foot traffic.
- **Power:** For personal safety and for proper operation, the machine must be grounded in accordance with state and local codes. The ground connection must be to a proven earth ground, not to conduit or water pipes. Do not use fuses in place of the circuit breaker. An easy- access cutoff switch should also be provided.

5.1.2 The 'Ergonomics'

Ergonomically-designed job ensures that an employee who is tall is given a comfortable space in or near his/her workspace so that the work efficiency is not hindered. Similarly, an employee who is shorter is able to reach all of his or her tools and products without upsetting comfort and safe assortment.

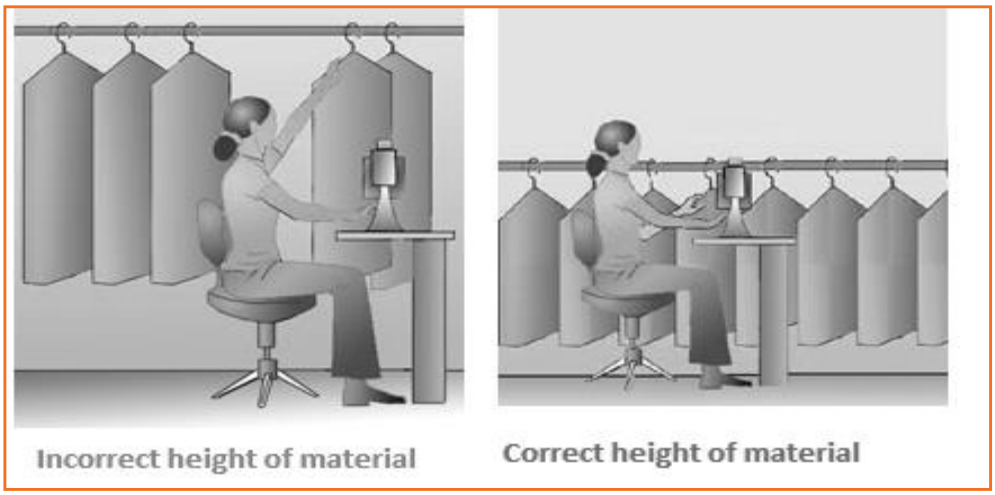


Fig.5.1.3: Situating the material

Workers are usually compelled to work in the confinement of the job or workstation that previously was designed with no dynamism or change when they are hired. This leads the workforce to work in difficult postures and positions, all of which may result in work-related injuries/disorders.

The work-place related injuries often start as minor aches and pains but can develop into incapacitating injuries that affect everyday activities. Ergonomics aims at preventing injuries by monitoring the risk factors such as force, repetition, posture and vibration that can cause injuries to develop.

Injuries and illnesses among textile and apparel workers

- 81% complained CTDs to the wrist.
- 49% of workers is suffering from neck pains.
- 35% report obstinate lower back pain.
- 25% have suffered a compensable increasing trauma disorder.
- 14% reported CTDs to the elbow.
- 5% reported CTDs to the shoulder.
- Absenteeism increases as working conditions worsens.
- High employee turnover is associated with detrimental working conditions.
- Embroidery tasks are associated with pain in the shoulders, wrists, and hands.
- Ironing by hand is associated with elbow pain.
- Fitting fabric in frames like of work, are associated with CTDs of the hands and wrists.

Some fundamental ergonomic principals that should be followed in our workplaces are:

Fig.5.1.4: Cleaning the Tools

- **Proper tools:** Tools and equipment provided at work place should be appropriate for the specific tasks being performed. The apparatus should allow the workers to keep their hands and wrists straight – the position they would be in if they were droopy relaxed at your side. The workers should bend the tool– not the wrist. The tool should fit easily into the hand. If the grip size is too large or too small, it will be uncomfortable and will increase the risk of injury. Tools should not have sharp edges.
- **Keep repetitive motions to a minimum:** Workstations can be restructured to avoid the number of health hazards which chances due to repetitive motions that must be performed. Using a power-driven screwdriver or tools with a notch device can decrease the number of twisting motions with the arm. Work stations should have enough space for the given tasks and provide proper chairs. For deterrence of ergonomic injuries, the labour force should be encouraged to change work and take frequent but short breaks. Some tasks can be mechanical or reformatted to eliminate musculoskeletal injuries. Manufacturing tools and equipment should integrated ergonomic design codes and should not require an extreme amount of force to operate.
- **Avoid awkward postures:** The industry is such that the workforce's job should not require you to work with your hands above shoulder height on a regular basis. Arms should be closer to the body and not raised too high. Bending of their wrists, back and neck should be avoided.
- **Use safe lifting procedures:** The employee should avoid lifting objects that are too heavy. Use more than one person or a mechanical device to reduce the load. The workstation should not require lifting objects above the head or twisting his/her back while lifting. One must keep the load close to his body. Heavy and often lifted objects should be kept between knee and shoulder height and not on the floor or above the head level.

- **Get proper rest:** It is imperative to take frequent breaks to rejuverate the body and mind so that they don't get injuried. The workforce should be groomed to understand that they should take a break from the work not just mentally but physically too. If a person has errand which doesn't allow him to sit, he must take intervals from his work to relax his leg muscles. If he is doing a sitting job, he must go for a walk whenever his work permits.

  For example, if you stand all day, while performing your job you should sit down to rest your legs and feet during your breaks. If you sit down, when working you should stand up and walk around during your breaks to give your back a rest and to increase circulation in your legs. By doing this the musculoskeletal injuries can be prevented.

- **Other things to consider:** Chemicals also have a part in garment manufacturing. Dyes, enzymes, solvents and other chemicals are used to create different fabric finishes and provide durability to the product. Proper ventilation and personal protective equipment are important for protection of workers engaged in chemical processing. Similarly, for workers who handle the finished material and may be exposed to excess chemicals and off-gassing, protective equipment should be used.

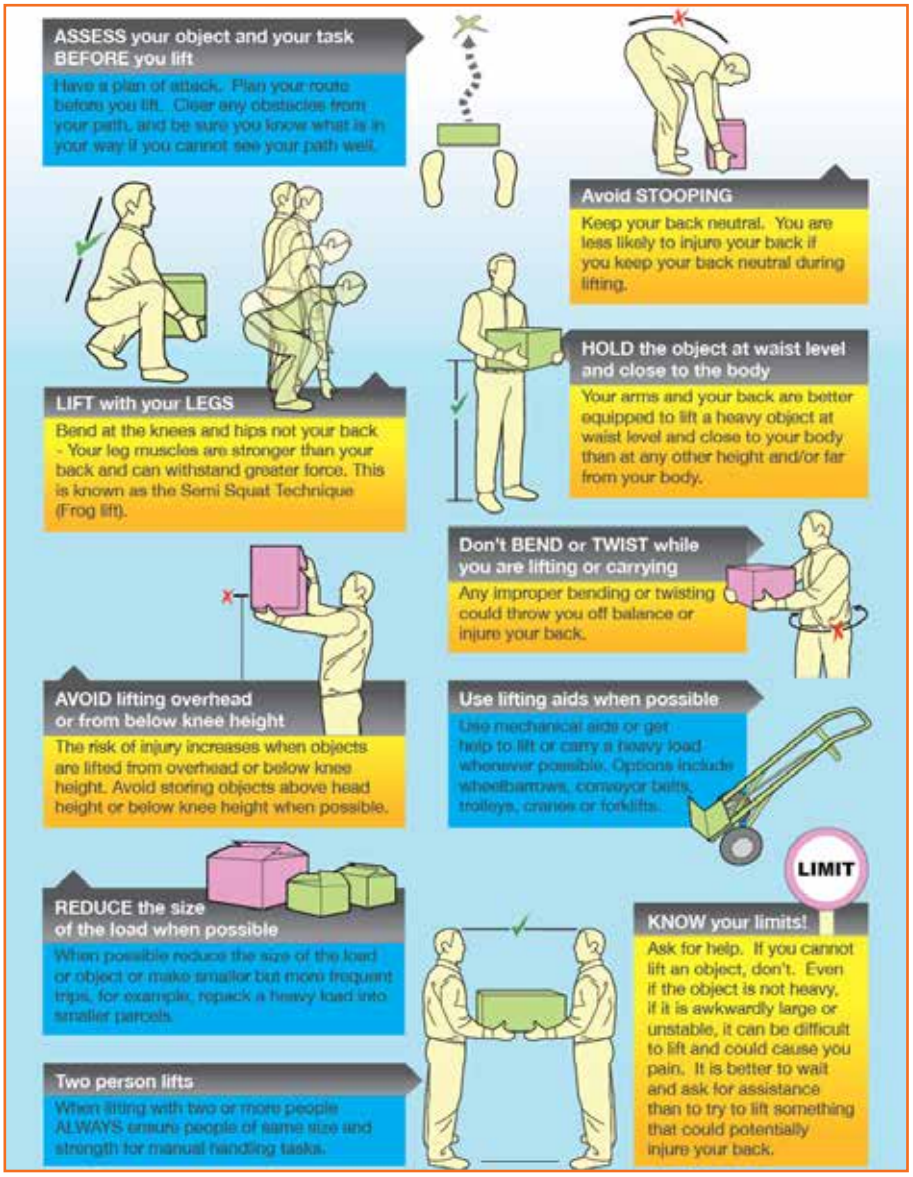


Fig.5.1.5: Do's and Don'ts in material handling

5.1.3 Environmental Control Measures

Hazardous substances in one form or another can be found in almost all small and medium-sized enterprises. The garments industry generates a lot of dust from fabrics being cut and sewn. Some fabrics release chemicals which saturate the air causing difficulties in breathing and eye irritation. Solvents used for cleaning fabrics and garments may cause fatigue, headache and dizziness. Dust and solvents, when breathed, can lead to lung diseases and are very dangerous. Not only will this affect the well-being of your workers, it will also result in a reduction of productivity and product quality, increased absenteeism and turnover of staff. High levels of dust interfere with efficient production and require cleaning operations that may spoil materials and finished products. Improved conditions usually mean increased output, higher productivity and quality. There are simple and inexpensive ways to control most of the environmental problems. Improvements often result in cost savings, productivity benefits and increased safety of workers. The following rules provide a series of low-cost measures for sound environmental control.

5.1.3.1 Clean Regularly and Properly - Don't Spread Dust

Dust originates from fabrics and threads, from cutting and sewing to packing operations. Thus, it is very common to see small clothing enterprises with ceilings and walls full of dusty cobwebs. Even machines which are not regularly cleaned could be full of dust which may cause them to break down.

Dust increases wear and tear on machinery, necessitating more maintenance. It also negatively affects the quality of raw materials and finished products. Dust entering the respiratory system can damage the worker's lungs. Some dust can also cause allergies. Dust should be removed regularly and eliminated from the source. More comprehensive cleaning should be carried out as often as necessary. This cleaning should also include walls, ceilings, storage racks and other areas where dust accumulates. Dust on windows, walls and lamps will significantly reduce the lighting in the workplace.

Fig.5.1.6: Cleaning the Shop Floor

One low-cost cleaning method is sweeping the floor carefully with an appropriate broom and accompanying dust pan to prevent dust from spreading. Spraying water on the floor before sweeping will avoid dust remaining airborne. When dust is moistened it can be easily removed with a broom More effective methods of controlling dust include using a vacuum cleaner or a wet mop.

5.1.4 Make Local Ventilation Cost-effective

Local ventilation should only be considered as a means of reducing chemical hazards when other means have failed. There are cost-effective ways of improving ventilation.

Use proper fans

Apart from those used for ventilating workstations, fans may be utilized to remove dangerous substances from the workplace. Contaminated air can be pushed or blown outside by having more open windows. A few points should be considered:

- There should be no obstacles between the fan and opening. Anything in the way significantly reduces the desired effect.
- The air speed should be low to reduce turbulence. In the garment industry, different fans are used; some use industrial fans or wall fans as shown in Fig. There are advantages and disadvantages for these types of fans. Industrial fans are so powerful that workers near them may be affected. Ceiling fans of the rotary type may lift the cloth being sewn, hence speed should be controlled.
- Contaminated air should not be blown in the direction of other workers on the way to the opening.

Fig.5.1.7: Using Fans

- Care should be taken that air expelled from the workplace does not affect people outside the enterprise.
- A fan may not be sufficient to remove vapours from hazardous fumes such as those sometimes used in silkscreen printing. Extractor systems to remove dust and hazardous chemicals should be installed. These systems may be quite expensive and it may be more economical to replace the hazardous chemicals.

5.1.5 Good Lighting for Quality Products

Good lighting does not mean more light bulbs and more use of electricity. Natural lighting is usually a better option than the bulbs. But if there is a difficulty in arranging for a natural lighting through windows and ventilators, its important that the bulbs and other elements of artificial lights should be well-maintained. A good lighting arrangement is directly proportionate to an efficient workforce.

80% of the absorption of information from our surroundings are from our eye as a sense organ. Bad lighting means wrong or lesser absorption of information, leading to lower productivity. Eye strain in low light can lead to head ache and again decreases the productivity level of the worker.

It is imperative to understand the ways in which we can arrange for a good lighting without increasing the electricity bills. First of all one has to identify if at all you need to work upon the existing brightness level in the work place. Lighting requirements are reliant on three main features:

- The environment of the working area
- The nature of the task
- The sharpness of the worker's eyesight

A sewer needs focused light at needle point, so needle lights should always be fitted. A worker packing garments requires more largely lighting. In many situations, packers work on special tiered work tops, where lights are built into the station. The age group of the workforce is also important factor to determine this. Which means, an older worker may need twice as much light as a younger one. Another way to identify the gap, in lighting problem is going around the workplace, observing the workers and asking them about their visual problems. The plan of improvements may not have much impact if the workers' eyesight is insufficient. An eyesight test for all employees should be carried out. Even if some workers do not follow advice about obtaining glasses. One will be aware of the problem and a possible reason for low efficiency and decreased productivity.

5.1.5.1 Use of Daylight

It is very unfortunate that many corporations undermine the fact that natural light is the best and the cheapest source of illumination. One had to gauge the surface area of the work area and measure the windows and skylights. Ideally the open space that includes the windows, ventilation windows and door should be one-third of the total area of work.

However a determinant of choosing the natural light is the heat that is emitted in the work place.

Fig.5.1.8: Use of daylight

If there is too many machinery omitting heat, it isn't a great idea to allow the natural heat to come in and add up to the temperature.

The higher the window, the more light is in. Skylights can double the light of a low light but if made in a lower level, it faces obstacles ad is blocked by the machineries and storage containers. If the factory doesn't have a skylight, one must consider to replace the opaque roofs with translucent or transparent plastic rooftops.

It is important to paint the walls in lighter shades which not just give a sense of space to a room, but the workstation would look illuminated. It enhances the visual conditions and a pleasant cheerful environment is encouraged.

The matt finish of whitewash is a great idea. Many enterprises are implementing white tile ceilings. To avoid harmful glare, one should avoid gloss paint for walls. Pale colours are better than white. A slightly dimmer colour below eye level is accommodating. But one should maintain cleanliness, since lack of regular cleaning can result in the loss of at least 10 to 20 per cent of light. Special care should be taken to clean skylights, which are sometimes difficult to reach.

These colours are much better than the black formerly used for the bodies or chrome finish for the Figs, which reflect more glare. An unsatisfactory circulation of natural light over the work area, particularly in embroidery rooms, is a problem. Considering the fact, one must change the layout of benches and machines in order to minimize shadow zones. Workstations with high lighting requirements should be moved closer to the windows and possibly be assembled together for the provision of additional lighting. However, if the workstation layout

responds well to your production needs, you may instead reorganize the delivery and height of the lamps or add needle lights which are good options.

Fig.5.1.9: Sunlight in the Shop Floor

5.1.6 Reporting an Accident and an Incident

Your responsibility requires you to be aware of potential hazards and correct reporting processes. If you notice a potentially hazardous situation, eg: a client expressing violent behavior, it is important that you report it immediately to management and fill out the appropriate forms as legally required of you.

If you are injured at work you must:

- Report the injury to management as soon as possible, and certainly within 24hours.
- Seek proper treatment for your injury.

5.1.6.1 Accidents

Always work in a safe manner to prevent accidents from occurring in the first place. Make sure that you have been given adequate information and on-the-job training about the first aid facilities and services available in your workplace, including:

- Where to find first aid kits.
- Location of first aid rooms.
- Complete, up-to-date contact details of trained first aid officers in the workplace procedures for critical accidents – such as who should be responsible for calling.
- The ambulance/doctor/nurse and what is the best method of contact, measures for evacuation of the injured person/s.
- Emergency procedure for the elimination of life-threatening chemicals commonly used in the workplace.
- Universal precautions for the control of infection.
- Who to contact for debriefing/psychological support.

Reporting of incidents and accidents is required under the Work Health and Safety (WHS) legislation. Workplaces tend to have well developed reporting procedures in place, which aim to fully understand the accident/incident and prevent any future occurrences through investment in injury prevention, based upon accurate data. Reporting and recording should also facilitate costing and associated financial loss.

Always report an accident to management immediately. There should be a form at each workplace that you (or the person involved) and any witnesses can fill out, where possible, otherwise. The form should cover the following areas:

- **Description of the occurrence:** What was the event that occurred, which required this report to be completed?
- **Nature of injury or disease:** Select the most appropriate description from a range of options. What injury or disease happened as a result of the occurrence?
- **First aid, medical treatment or hospital admission:** This section asks for a description of what was done to treat the injury or disease.
- **Part of the body affected:** Tick off which part or parts of the body were affected as a result of the occurrence.
- **Source of injury:** What actually caused the person to be injured or acquire a disease? This could be a piece of machinery or other hazardous materials for example.
- **Probable cause or causes of injury:** How was the source listed above actually responsible for the injury?
- **Investigation:** This asks a series of questions that seek to find out why the person has been injured or has acquired a disease.
- **Notification checklist:** This checklist makes sure that everyone who should have been contacted regarding the matter has been contacted and asks whether appropriate action has been taken by the authorities.
- **Preventative action:** This asks whether or not any action has been taken to prevent the occurrence from happening again.
- **Witness details:** This part is to be filled out if someone saw the occurrence happen. It is essential if any sort of legal action is to be taken.

5.1.7 Mock Drills/ Evacuations

Fire safety and evacuation plans sketch staff duties and accountabilities in time of emergency. Continuing training is required to help safeguard that the employees are conscious of those duties and responsibilities. Fire fighting trainings serve as an prospect for staff members to validate, under replicated fire conditions, that they can perform those duties and responsibilities safely and efficiently. It's also a time for them to demonstration that they are aware of defend-in-place strategies and can take advantage of your facility's fire protection features and exit facilities to protect the people in their care.

Fig.5.1.10: Fire Safety

Fire drills are excellent exercise designed to evaluate staff response to a replicated emergency. They are also a test of your facility's fire safety/ evacuation strategies and staff training programs. It is not essential that all fire drills run smoothly. That's okay, so long as staff and the organization learns from them and correct mistakes made. It's vital, therefore, that there be a analysis of each drill so that any problems met can be addressed. Perhaps the problems are due to unfinished or out-dated fire safety/emigration plans. Perhaps there's a need for additional staff training.

The two essential components of a fire preparedness plan are the following:

1. An emergency action plan, which details what to do when a fire occurs.
2. A fire prevention plan, which describes what to do to prevent a fire from occurring.

5.1.8 Low-cost Work-related Welfare Facilities and Benefits

Work-related welfare conveniences and facilities are never given heed to. Who cares about toilets, first-aid kits, lunch rooms or lockers? What do they have to do with the hard authenticities of production? One answer is that workforces care. During each working day, workers need to drink water or some other beverage, eat meals and snacks, wash their hands, visit a lavatory, and rest to recover from fatigue. This can be difficult or easy, unpleasant or comfortable, a health risk or an aid to hygiene and nutrition. The essential facilities in the factory show if you care about employees more or the machines.

Another good reason is that extra efforts for better facilities are often appreciated far beyond the time and money capitalized, Work-related facilities benefit workers to overcome problems which are important to them. Let workers express their priorities for improvements and give their feedback. You may be surprised at the results. Giving a hygienic and wel-maintained workplace is indirectly showing yur employees how much you care for them.

A small enterprise can be a community where workers are loyal, with good industrial relations and high morale, It can also be a place where workers look for the first chance to leave and care little about the owner's success. Which kind of initiative do you want? The series of low-cost facilities that trails will help to retain the best staffs.

5.1.12.1 Essential Facilities

Drinking water

Drinking water is indispensable for all workers; if this is not provided, they become thirsty and gradually dehydrated. This greatly increases fatigue and lowers productivity, especially in a hot environment. Place water vessels near each group of workers, or provide taps or cascades with clean water in a central place. This will minimize the time lost in going to get a drink. However, drinking water should not be placed in washrooms or toilets, near dangerous machines or other hazards, nor in places where it can be contaminated by dust, chemicals or other substances.

If there is any doubt about contamination, water must be thoroughly boiled or properly filtered or treated. Unhealthy water will lead to illness and therefore absenteeism from work. Before starting to use a new water source for drinking purposes, it is advisable to have it tested to make sure it conforms to the national standard for drinking water. The design, construction and operation of deep wells for the extraction of ground water should be subjected to the provisions of existing water codes. Piped water should only be used when a hygienic water supply is guaranteed. A clear distinction between potable and non-potable water taps should be made and a "Safe Drinking Water" sign should be put up near to each tap.

Drinking water vessels should be made from materials that can easily be cleaned, Even if the vessels are filled with fresh water, the water inside, if kept for even a short time, can become unhygienic. It should therefore be different frequently. It is also imperative to make sure that drinking water is cool. If a water cooler is too luxurious, the water vessels can be placed in the coolest place in the factory. It will facilitate the water to remain cool throughout the day. They should not be left uncovered, under the sun or in a hot place. Drinking fountains for production areas are very advantageous from a hygienic point of view. They can be fitted with a jet or bubbler outlet and/or goose-neck or other outlet for filling drinking cups. The fountain should be free from sharp angles and designed to prevent unnecessary splashing. Water outlets should be above the rim of overflow level so that they will not be contaminated with waste water. The water outlet should be shielded to prevent the lips of a drinker from being placed on it. Drinking water containers should be attended by a designated person. Containers should be made of impermeable materials. A cooling device would be an advantage. (Unglazed pottery can be used, due to its unique cooling effect, in dust-free places.) Containers should be provided with suitable covers, and kept in a cool place protected from the sun. The water must be changed frequently.

To avoid the possible spread of infection, it is better to use throwaway cups or to provide separate cups for each worker and to arrange for regular washing. When containers are used, it is important to clean them regularly. Cleaning and other necessary conservation tasks should be assigned to a specific person. In addition, the provision of a competence for boiling water will enable people to make coffee or other hot beverage during breaks. Hot water is required if the enterprise has a childcare facility.

5.1.12.2 Sanitary Facilities

There are several reasons why the provision of washing facilities is important:

- Dirt and grime can be ingested and cause sickness or disease; they are, in any case, unpleasant and demoralizing.
- Washing is a necessity when women have their monthly periods.
- Washing is required for basic hygiene after using the toilet.
- Apart from the obvious basic need, sanitary facilities are required by law. Clienteles often create an impression of an enterprise through the quality of its sanitary facilities.

- There should be a sufficient number of hygienic facilities on the work locations and each should be conveniently located to avoid long walks, waiting and hindrance. The law of the country must be monitored, but the following are the minimum requirements:
- One restroom is required for up to five men; two toilets for six to 40 men.
- One separate restroom for up to five women and two toilets for six to 30 women.
- One wash-basin for every 15 workers.

Fig.5.1.11: Signages

Ideally, there would be a separate toilet for men and women. These should be characterized as follows:

- The toilet bowl must be free from stain or odour and function properly.
- The walls of the toilet must be clean and tiles unstained.
- The ceiling of the toilet must be free from cobwebs and dust.
- Floors must be clean and safe (no broken tiles, nor slippery surface).
- Proper illumination must be provided inside the toilet.
- Toilets must have a continuous supply of water; in case water is limited in the area, water should be stocked in containers and refilled regularly.
- Mirrors and rubbish bins should be provided in the washroom.
- Soap and toilet paper should be provided.
- The washroom should provide complete privacy to users and should be fully ventilated.

5.1.9 Be Ready for Emergencies

Misfortunes can happen even if proper defensive measures are installed. So, always be prepared for emergencies and have readiness for disaster management, like cuts and bruises, eye injuries, burns, poisoning and electric shocks. Every enterprise should maintain a well-stocked first-aid box and assign at least one person from every shift to handle emergencies. First-aid boxes should be clearly marked and situated in a place, so that they are readily reachable in an emergency. They should not be more than 100 metres away from any place on the work site. Ideally, such kits should be near a wash-basin and in good lighting conditions. Their supplies need to be regularly checked and replenished. The contents of a first-aid box are often regulated by law, with variations according to the size and the likely industrial hazards of the enterprise. A typical basic kit may include the following items in a dustproof and waterproof box:

Fig.5.1.12: First Aid

- Sterile bandages, pressure bandages, dressings (gauze pads) and slings. These should be individually wrapped and placed in a dustproof box or bag. Adequate quantities of the different sizes should be available at all times to treat small cuts and burns.
- Cotton wool for cleaning wounds.

Ideally, there would be a separate toilet for men and women. These should be characterized as follows:

- The toilet bowl must be free from stain or odour and utility properly.
- The walls of the toilet must be clean and tiles unstained.
- The ceiling of the toilet must be free from torpors and dust.
- Floors must be clean and safe (no broken tiles, nor slippery surface).
- Proper illumination must be provided inside the restroom.
- Lavatories must have a continuous supply of water; in case water is limited in the area, water should be stocked in containers and refilled regularly.
- Mirrors and rubbish bins should be provided in the washroom.
- Soap and toilet paper should be provided.
- The washroom should give complete privacy to users and should be fully aired.

5.1.10 Safety Signs at Workplace

Safety Signs: Sign providing information or instruction about safety or health at work by means of a signboard, a colour, an illuminated sign or acoustic signal, a verbal communication or hand signal.

Signboard: A sign which provides information or instructions by a combination of shape, colour and a symbol or pictogram which is rendered visible by lighting of sufficient intensity. In practice, many signboards may be accompanied by supplementary text, eg 'Fire exit', alongside the symbol of a moving person. Signboards can be of the following four types:

1. **Prohibition sign:** A sign prohibiting behaviour likely to increase or cause danger (eg 'no access for unauthorised persons').

Fig.5.1.13: Prohibition sign

2. **Warning sign:** A sign giving warning of a hazard or danger (eg 'danger: electricity').

Fig.5.1.14: Warning sign

3. **Mandatory sign:** A sign prescribing specific behaviour (eg 'eye protection must be worn').

Fig.5.1.15: Mandatory sign

4. **Emergency escape, Fire and First-aid signs:** A sign giving information on emergency exits, first aid, or rescue facilities (eg 'emergency exit/escape route'.

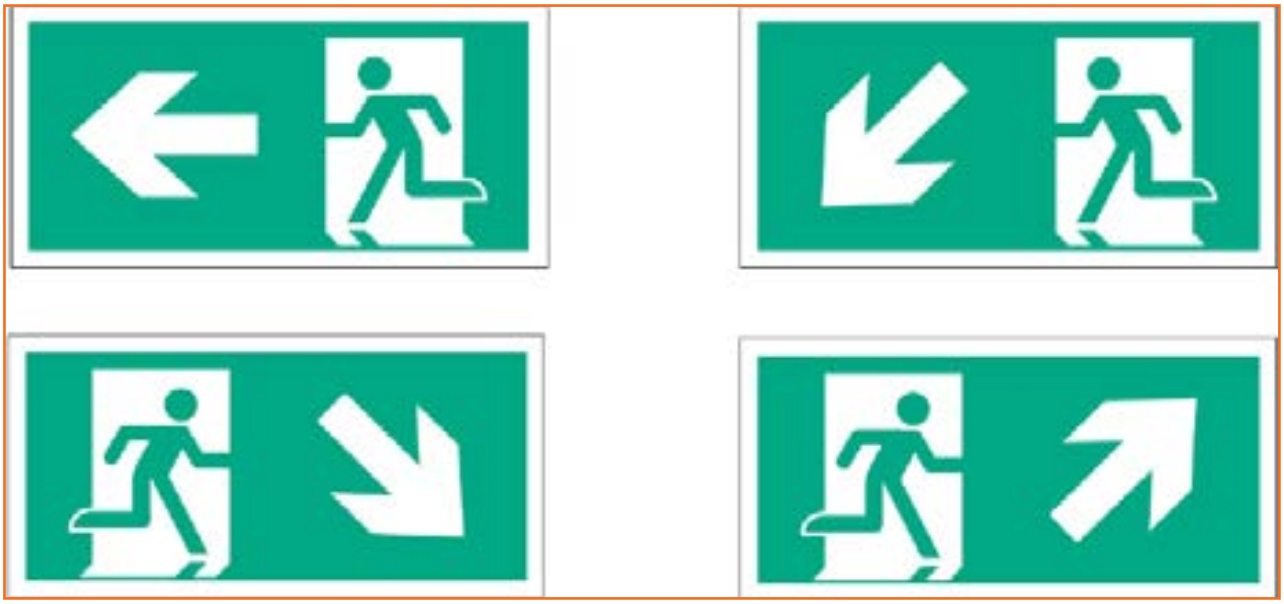


Fig.5.1.16: Emergency escape

Signs for emergency exits

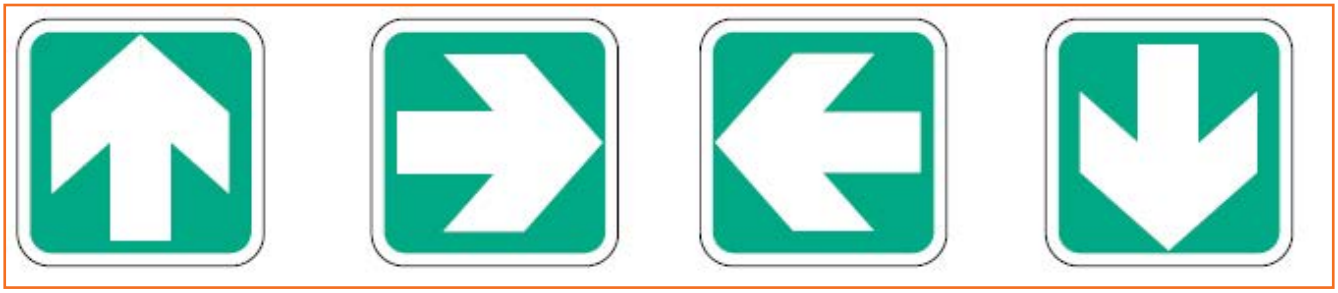


Fig.5.1.17: Signs for emergency exits

Signs for Fire and First Aid

Fig.5.1.18: Signs for Fire

5.1.11 Prevention and Management of Corona Virus

As we all know a new respiratory disease called COVID-19 is spreading across the world. India has also reported cases from states and the government is trying to contain the spread of the disease. We can play a major role in preventing its spread by follow Covid safety guidelines.

COVID-19 is a disease caused by the "novel corona virus". Common symptoms are Fever, Dry cough,Breathing difficulty, Some patients also have aches and pains, nasal congestion, runny nose, sore throat or diarrhea

Fig.5.1.19: Prevention from COVID-19

COVID-19 spreads mainly by droplets produced as a result of coughing or sneezing of a COVID-19 infected person. To protect yourself from Covid-19, follow below guidelines.

- Maintain a safe distance from others (at least 1 metre), even if they don't appear to be sick.
- Wear a mask in public, especially indoors or when physical distancing is not possible.
- Choose open, well-ventilated spaces over closed ones. Open a window if indoors.
- Clean your hands often. Use soap and water, or an alcohol-based hand rub.
- Get vaccinated when it's your turn. Follow local guidance about vaccination.
- Cover your nose and mouth with your bent elbow or a tissue when you cough or sneeze.
- Stay home if you feel unwell.
- If you have a fever, cough and difficulty breathing, seek medical attention. Call in advance so your healthcare provider can direct you to the right health facility.

This protects you, and prevents the spread of viruses and other infections.

Exercise

1. While working at workplace, your waist should be at:
   a) 30°
   b) 60°
   c) 90°
   d) 120°
1. We receive _____ per cent of all information through our eyes.
   a) 75%
   b) 60%
   c) 70%
   d) 80%
2. In case of fire do not use _____.
   a) Lift
   b) Stairs
   c) Ladder
   d) Window
3. The factors that lead to reduction in injury rates include:
   a) Empowering workforce
   b) Following safety protocol
   c) Good housekeeping practices
   d) Support from top management
   e) All of the above
4. Lighting requirements are reliant on:
   a) The environment of the working area
   b) The nature of the task
   c) The sharpness of the worker's eyesight
   d) All of the above

UNIT 5.2: First Aid & CPR

Unit Objectives

At the end of this unit, participants will be able to:

1. Apply first aid on an injured person.
2. Interpret the procedure of CPR.

5.2.1 First Aid

First aid is the assistance given to any person suffering a sudden illness or injury, with care provided to preserve life, prevent the condition from worsening, and/or promote recovery. It includes initial intervention in a serious condition prior to professional medical help being available, such as performing CPR while awaiting an ambulance, as well as the complete treatment of minor conditions, such as applying a plaster to a cut. First aid is generally performed by the layperson, with many people trained in providing basic levels of first aid, and others willing to do so from acquired knowledge. Mental health first aid is an extension of the concept of first aid to cover mental health.

Fig.5.2.1: First aid Pyramid

There are many situations which may require first aid, and many countries have legislation, regulation, or guidance which specifies a minimum level of first aid provision in certain circumstances. This can include specific training or equipment to be available in the workplace (such as an Automated External Defibrillator), the provision of specialist first aid cover at public gatherings, or mandatory first aid training within schools. First aid, however, does not necessarily require any particular equipment or prior knowledge, and can involve improvisation with materials available at the time, often by untrained persons.

Vital Signs	Good	Poor
Heart Rate	60-100 beats per minute	Less than 60 or greater than 100 beats per minute
Respirations	14-16 breaths per minute	Less than 14 breaths per minute
Skin	Warm, pink and dry	Cool, pale and moist
Consciousness	Alert and orientated	Drowsy or unconscious

Fig.5.2.2: Vital Signs

Awareness	Assessment	Action	Aftercare
• Observe • Stop to Help	• Assess what is required to be done • Ask yourself, 'Can I do it?'	• Do what you can • Call for expert medical help • Take care of your and the bystander's safety	• Once you have assisted the victim, stay with him/her till expert care arrives

Fig.5.2.3: Four A's of First Aid

While delivering First Aid always remember:

- Prevent deterioration.
- Act swiftly, deliberately and confidently.
- Golden Hour – First 60 minutes following an accident.
- Platinum Period – First 15 minutes following an accident.
- Prevent shock and choking.
- Stop bleeding.
- Loosen victim's clothes.
- Regulate respiratory system.
- Avoid crowding/over-crowding.
- Arrange to take victim to safe place/hospital.
- Attend to emergencies first with ease and without fear.
- Do not overdo. Remember that the person giving first aid is not a doctor.

Injury	Symptom	Do's	Don'ts
Fracture	• Pain • Swelling • Visible bone	• Immobilise the affected part • Stabilise the affected part • Use a cloth as a sling • Use board as a sling • Carefully Transfer the victim on a stretcher	• Do not move the affected part • Do not wash or probe the injured area
Burns (see Degrees of Burn table)	• Redness of skin • Blistered skin • Injury marks • Headache/seizures	• In case of electrical burn, cut-off the power supply • In case of fire, put out fire with blanket/coat • Use water to douse the flames • Remove any jewellery from the affected area • Wash the burn with water	• Do not pull off any clothing stuck to the burnt skin • Do not place ice on the burn • Do not use cotton to cover the burn

Bleeding	• Bruises • Visible blood loss from body • Coughing blood • Wound/Injury marks • Unconsciousness due to blood loss • Dizziness • Pale skin	• Check victim's breathing • Elevate the wound above heart level • Apply direct pressure to the wound with a clean cloth or hands • Remove any visible objects from the wounds • Apply bandage once the bleeding stops	• Do not clean the wound from out to in direction • Do not apply too much pressure (not more than 15 mins) • Do not give water to the victim
Heat Stroke/Sun Stoke	• High body temperature • Headache • Hot and dry skin • Nausea/Vomiting • Unconsciousness	• Move the victim to a cool, shady place • Wet the victim's skin with a sponge • If possible apply ice packs to victim's neck, back and armpits • Remove any jewellery from the affected area • Wash the burn with water	• Do not let people crowd around the victim • Do not give any hot drinks to the victim
Unconsciousness	• No movement of limbs • No verbal response or gestures • Pale skin	• Loosen clothing around neck, waist and chest • Check for breathing • Place the victim's legs above the level of heart • If victim is not breathing, perform CPR	• Do not throw water or slap the victim • Do not force feed anything • Do not raise the head high as it may block the airway

Fig.5.2.4: First Aid for different types of injuries

1st Degree Burn	2nd Degree Burn	3rd Degree Burn	4th Degree Burn
Will recover itself in a few days. **Action Required:** Place under running water.	Serious but recovers in a few weeks. **Action Required:** Place clean wet cloth over the burnt area.	Very Serious and will require skin grafting. **Action Required:** Place a clean dry cloth over the burnt area.	Extremely Serious and requires many years with repeated plastic surgery and skin grafting, is life threatening. **Action Required:** Leave open and prevent infection.

Fig.5.2.5: Degree of Burns

5.2.2 Splints and Aids of Torso

A splint is a bandage that immobilizes a broken bone. Sometimes this is done by using rigid objects such as sticks or boards. For some injuries, however, this isn't possible and the only option is to tie the broken limb to the body.

5.2.2.1 Splints

During the application of a splint, it is important to not attempt to straighten the break. This will lead to more injury and pain for the affected. Instead, the splint should be applies to the break the way it was.

When using rigid material

Always use long enough pieces to reach the joints beyond the break. For example, when splinting a forearm, the material should be long enough to touch both the wrist and the elbow. This helps keep the material in place and prevents too much pressure from being applied to the wound.

- Always put padding between the rigid material and the body to keep the victim comfortable.
- Knots should be tied between the body and the rigid material. This is an easier option when it comes to untying them. However, if this can't be carried out, the knots should be tied over the rigid material.
- Padding should always be used between the body and the rigid material in order to provide a comfortable setting to the affected.

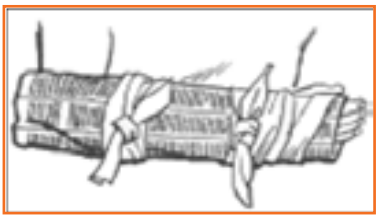


Fig.5.2.6: Splint the Forearm

- Splint the wrist in the same way. The entire forearm should be immobilized.

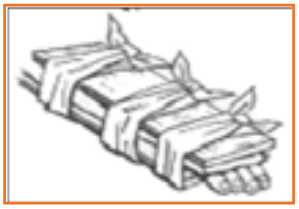


Fig.5.2.7: splint the Wrist

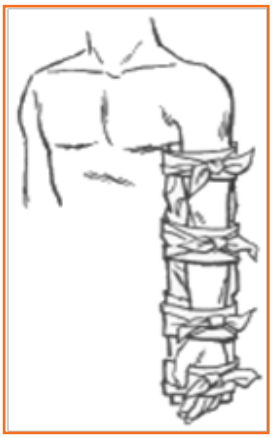


Fig.5.2.8: Splint the Elbow

- To splint the elbow, use enough rigid material to go from the armpit to the hand. The entire arm should be immobilized. Do not attempt to straighten or bend the elbow; splint it in position.
- To splint the upper leg, use long pieces of rigid material that will reach from the ankle to the armpit. Above the hips, tie long straps around the torso to hold the top of the splint in place.

Fig.5.2.9: Splint the Upper Leg

- The pieces used should be long enough to reach the joint beyond the break. For instance, when a forearm is splinted, the material should be long enough in such a way that it includes both the wrist and the elbow. This helps in preventing too much pressure to the wound and also helps in keeping the material in place.

Fig.5.2.10: Splint the Lower Leg

5.2.3 CPR

Basic life support (BLS) is a level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital.

First aid is as easy as ABC – airway, breathing and CPR (cardiopulmonary resuscitation). In any situation, apply the DRSABCD Action Plan.

DRSABCD stands for:

- **Danger:** Always check the danger to you, any bystanders and then the injured or ill person. Make sure you do not put yourself in danger when going to the assistance of another person.
- **Response:** Is the person conscious? Do they respond when you talk to them, touch their hands or squeeze their shoulder?
- **Send for help:** Call ambulance.
- **Airway:** Is the person's airway clear? Is the person breathing? If the person is responding, they are conscious and their airway is clear, assess how you can help them with any injury.

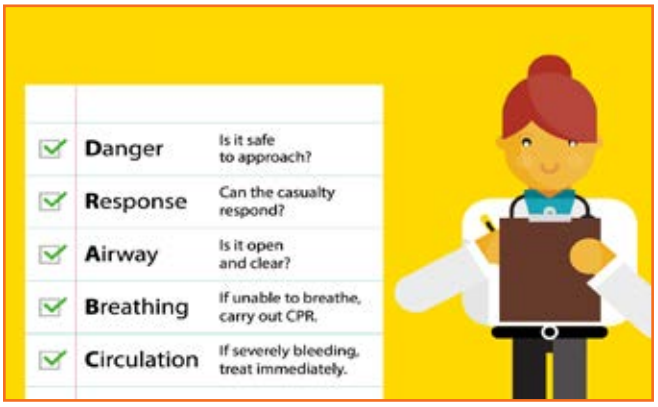


Fig.5.2.11: Basic life support chart

If the person is not responding and they are unconscious, you need to check their airway by opening their mouth and having a look inside. If their mouth is clear, tilt their head gently back (by lifting their chin) and check for breathing. If the mouth is not clear, place the person on their side, open their mouth and clear the contents, then tilt the head back and check for breathing.

- **Breathing:** Check for breathing by looking for chest movements (up and down). Listen by putting your ear near to their mouth and nose. Feel for breathing by putting your hand on the lower part of their chest. If the person is unconscious but breathing, turn them onto their side, carefully ensuring that you keep their head, neck and spine in alignment. Monitor their breathing until you hand over to the ambulance officers.
- **CPR (cardiopulmonary resuscitation):** if an adult is unconscious and not breathing, make sure they are flat on their back and then place the heel of one hand in the centre of their chest and your other hand on top. Press down firmly and smoothly (compressing to one third of their chest depth) 30 times. Give two breaths. To get the breath in, tilt their head back gently by lifting their chin. Pinch their nostrils closed, place your open mouth firmly over their open mouth and blow firmly into their mouth. Keep going with the 30 compressions and two breaths at the speed of approximately five repeats in two minutes until you hand over to the ambulance officers or another trained person, or until the person you are resuscitating responds.
- **Defibrillator:** For unconscious adults who are not breathing, an automated external defibrillator (AED) is applied. An AED is a machine that delivers an electrical shock to cancel any irregular heart beat (arrhythmia), in an effort get the normal heart beating to re-establish itself. Please ensure that a trained person is there

to apply the AED. If the person responds to defibrillation, turn them onto their side and tilt their head to maintain their airway.

1. Airway

Once you have assessed the patient's level of consciousness, evaluate the patient's airway. Remember, if the patient is alert and talking, the airway is open. For a patient who is unresponsive, make sure that he or she is in a supine (face-up) position to effectively evaluate the airway. If the patient is face-down, you must roll the patient onto his or her back, taking care not to create or worsen an injury. If the patient is unresponsive and his or her airway is not open, you need to open the airway. Head-tilt/chin-lift technique can be used to open the airway.

Head-tilt/chin-lift technique

To perform the head-tilt/chin lift technique on an adult:

- Press down on the forehead while pulling up on the bony part of the chin with two to three fingers of the other hand.
- Tilt the head past a neutral position to open the airway while avoiding hyperextension of the neck.

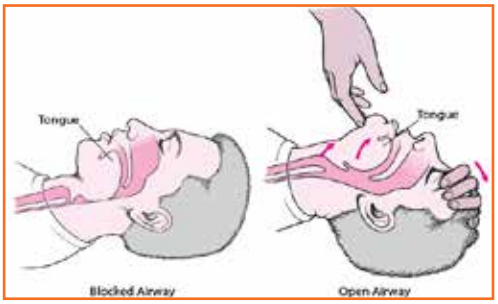


Fig.5.2.12: Airway

2. Cardiopulmonary resuscitation

Cardiopulmonary resuscitation circulates blood that contains oxygen to the vital organs of a patient in cardiac arrest when the heart and breathing have stopped. It includes chest compressions and ventilations as well as the use of an automated external defibrillator.

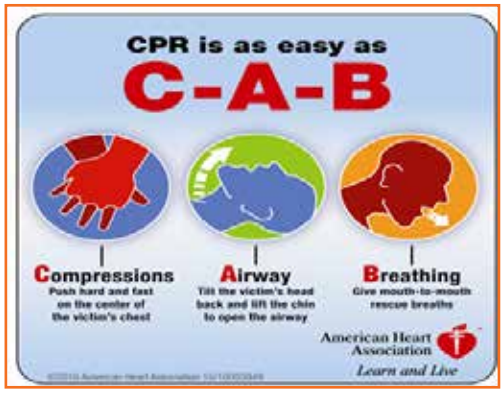


Fig.5.2.13: CAB

- **Compressions:** One component of CPR is chest compressions. To ensure optimal patient outcomes, high-quality CPR must be performed. You can ensure high-quality CPR by providing high-quality chest compressions, making sure that the:
  - » Patient is on a firm, flat surface to allow for adequate compression. In a non- healthcare setting this would typically be on the floor or ground, while in a healthcare setting this may be on a stretcher or bed.
  - » The chest is exposed to ensure proper hand placement and the ability to visualize chest recoil.
  - » Hands are correctly positioned with the heel of one hand in the center of the chest on the lower half of sternum with the other hand on top. Most rescuers find that interlacing their fingers makes it easier to provide compressions while keeping the fingers off the chest.

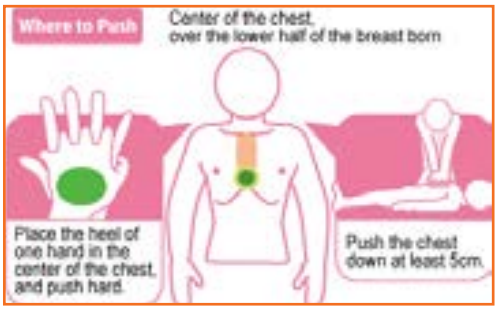


Fig.5.2.14: Compressions

- » Arms are as straight as possible, with the shoulders directly over the hands to promote effective compressions. Locking elbows will help maintain straight arms.
- » Compressions are given at the correct rate of at least 100 per minute to a maximum of 120 per minute, and at the proper depth of at least 2 inches for an adult to promote adequate circulation.
- » The chest must be allowed to fully recoil between each compression to allow blood to flow back into the heart following the compression.
- » For adult co-workers, CPR consists of 30 chest compressions followed by 2 ventilations.

- **Ventilations:** Ventilations supply oxygen to a patient who is not breathing. They may be given via several methods including:

Mouth-to-Mouth

- Open the airway past a neutral position using the head-tilt/chin-lift technique.
- Pinch the nose shut and make a complete seal over the patient's mouth with your mouth.
- Give ventilations by blowing into the patient's mouth. Ventilations should be given one at a time. Take a break between breaths by breaking the seal slightly between ventilations and then taking a breath before re-sealing over the mouth.

Pocket mask

CPR breathing barriers, such as pocket masks, create a barrier between your mouth and the patient's mouth and nose. This barrier can help to protect you from contact with a patient's blood, vomitus and saliva, and from breathing the air that the patient exhales.

- Assemble the mask and valve.
- Open the airway past the neutral position using the head-tilt/chin-lift technique from the patient's side when alone.
- Place the mask over the mouth and nose of the patient starting from the bridge of the nose, then place the bottom of the mask below the mouth to the chin (the mask should not extend past the chin).
- Seal the mask by placing the "webbing" between your index finger and thumb on the top of the mask above the valve while placing your remaining fingers on the side of the patient's face. With your other hand (the hand closest to the patient's chest), place your thumb along the base of the mask while placing your bent index finger under the patient's chin, lifting the face into the mask.

5.2.4 Performing CPR for an Adult

- **STEP 1: Check the scene for immediate danger:** Make sure that you are not compromising your own safety by administering CPR to someone else. Is there a fire? Is the person lying on a roadway? It is important to do whatever is necessary to move yourself and carry the other person to safety.
- **STEP 2: Assess the victim's consciousness:** Gently tap his or her on their shoulder and ask, "Are you OK?" If the person responds in affirmative in a loud or clear voice, CPR is not required. Instead, one should undertake basic first aid and take measures to prevent or treat shock and assess whether there is a need to contact emergency services. If the victim is not responsive, the following steps should be undertaken.
- **STEP 3: Do not check for a pulse:** Unless you're a trained medical professional, odds are you'll spend too much valuable time looking for a pulse when you should be doing compressions.

- **STEP 4: Check for breathing:** Make sure that the airway is not blocked. If the mouth is closed, press with your thumb and forefinger on both cheeks at the end of the teeth and then look inside. Remove any visible obstacle that is in your reach but never push your fingers inside too far. Put your ear close to the victim's nose and mouth, and listen for slight breathing. If the victim is coughing or breathing normally, do not perform CPR.

Fig.5.2.15(a): Performing CPR for an Adult

- **STEP 5: Place the victim on his or her back:** Make sure he or she is lying as flat as possible-this will prevent injury while you're doing chest compressions. Tilt their head back by using your palm against their forehead and a push against their chin.

Fig.5.2.15(b): Performing CPR for an Adult

- **STEP 6:** Place the heel of one hand on the victim's breastbone, 2 finger-widths above the meeting area of the lower ribs, exactly in the middle of the chest.

Fig.5.2.15(c): Performing CPR for an Adult

- **STEP 7:** Place your second hand on top of the first hand, Palms-down, interlock the fingers of the second hand between the first.

Fig.5.2.15(d): Performing CPR for an Adult

- **STEP 8:** Position your body directly over your hands, so that your arms are straight and somewhat rigid. Don't flex the arms to push, but sort of lock your elbows, and use your upper body strength to push.

Fig.5.2.15(e): Performing CPR for an Adult

- **STEP 9:** Perform 30 chest compressions. Press down with both hands directly over the breastbone to perform a compression, which helps the heart beat. Chest compressions are more critical for correcting abnormal heart rhythms (ventricular fibrillation or pulseless ventricular tachycardia, heart rapidly quivering instead of beating). You should press down by about 2 inches (5 cm).

Fig.5.2.15(f): Performing CPR for an Adult

- **STEP 10:** Minimize pauses in chest compression that occur when changing providers or preparing for a shock. Attempt to limit interruptions to less than 10 seconds.

Fig.5.2.15(g): Performing CPR for an Adult

- **STEP 11:** Make sure the airway is open. Place your hand on the victim's forehead and two fingers on their chin and tilt the head back to open the airway. If you suspect a neck injury, pull the jaw forward rather than lifting the chin. If jaw thrust fails to open the airway, do a careful head tilt and chin lift. If there are no signs of life, place a breathing barrier (if available) over the victim's mouth.

Fig.5.2.15(h): Performing CPR for an Adult

- **STEP 12:** Give two rescue breaths (optional). If you are trained in CPR and totally confident, give two rescue breaths after your 30 chest compressions. If you've never done CPR before, or you're trained but rusty, stick with only chest compressions.

Fig.5.2.15(i): Performing CPR for an Adult

- **STEP 13:** Repeat the cycle of 30 chest compressions. If you're also doing rescue breaths, keep doing a cycle of 30 chest compressions, and then 2 rescue breaths; repeat the 30 compressions and 2 more breaths. You should do CPR for 2 minutes (5 cycles of compressions to breaths) before spend time checking for signs of life.

5.2.5 CPR Using AED

- **STEP 1:** Use an AED (automated external defibrillator). If an AED is available in the immediate area, use it as soon as possible to jump-start the victim's heart. Make sure there are no puddles or standing water in the immediate area.

Fig.5.2.16(a): Performing CPR for an Adult

- **STEP 2:** Fully expose the victim's chest. Remove any metal necklaces or underwire bras. Check for any body piercings, or evidence that the victim has a pacemaker or implantable cardioverter defibrillator (should be indicated by a medical bracelet) to avoid shocking too close to those spots. Make sure the chest is absolutely dry and the victim is not in a puddle. Note that, if the person has a lot of chest hair, you may need to shave it, if possible. Some AED kits come with razors for this purpose.

Fig.5.2.16(b): Performing CPR for an Adult

- **STEP 2:** Attach the sticky pads with electrodes to the victim's chest. Follow the instructions on the AED for placement. Move the pads at least 1 inch (2.5 cm) away from any metal piercings or implanted devices. Make sure no one is touching the person, when you apply the shock.

Fig.5.2.16(c): Performing CPR for an Adult

- **STEP 8:** Press analyse on the AED machine. If a shock is needed for the patient, the machine will notify you. If you do shock the victim, make sure no one is touching him or her.
- **STEP 9:** Do not remove pads from the victim and resume CPR for another 5 cycles before using the AED again. Stick on adhesive electrode pads are intended to be left in place.

Fig.5.2.16(d): Performing CPR for an Adult

5.2.6 Chain of Survival

Chain of Survival is a sequential process for providing treatment to victims of SCA outside of a hospital setting. More people can survive SCA if the following steps occur in rapid succession:

- Cardiac arrest is immediately recognized and the emergency response system is activated.
- Early cardiopulmonary resuscitation (CPR) is started with an emphasis on chest compression.
- Rapid defibrillation occurs.
- Effective advanced life support is begun.
- Integrated post-cardiac arrest care is provided.
- Quick execution of each step is critical because the chances of survival decrease 7 to 10 percent with each passing minute.

UNIT: 5.3: Sensitivity towards People with disability and Gender Equality

Unit Objectives

At the end of this unit, participants will be able to:

1. Elaborate the details about PWD Sensitization.
2. Explain gender sensitization and equality.

5.3.1 What is sensitization?

The process of becoming highly sensitive to specific events or situations (especially emotional events or situations) Sensitization doesn't always mean feeling the same pain the other person is feeling. It means knowing that the pain exists and there is a different way of living. Despite how the person lives, he or she has a right to exist in a society. It's an attitudinal change and very much required in current time.

Sensitivity to People with Disability

According to the Oxford Dictionary, a disability could be described as an impairment which can be Intellectual, limitations, cognitive, improvement, sensory, exercise or the mixture of all these. Incapacity impacts a person's activities and may happen at birth. Sometimes, it could happen in adulthood. In the medical model, individuals with certain physical, intellectual, psychological and mental impairments are taken as disabled. According to this, the disability lies in the individual as it is equated with restrictions of activity with the burden of adjusting with environment through cures, treatment and rehabilitation.

People with disabilities are subject to multiple deprivations with limited access to basic services, including education, employment, rehabilitation facilities etc. To work towards an inclusive, barrier free society by raising awareness and policy actions, there is a need to have comprehensive reliable statistics on people with disability and their socio-economic conditions

The Constitution of India ensures equality, freedom, justice and dignity of all individuals including persons with disabilities and mandates an inclusive society for all.

The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation Act, 1995) came into force on February 7, 1996.This was an important landmark and was a significant step in the direction of ensuring equal opportunities for persons with disabilities and their full participation in the nation building. The Act provides for both preventive and promotional aspects of rehabilitation like education, employment and vocational training, job reservation, research and manpower development, creation of barrier-free environment, rehabilitation of person with disability, unemployment allowance for the disabled, special insurance scheme for the disabled employees and establishment of homes for persons with severe disability etc.

In order to give focused attention to Policy issues and meaningful thrust to the activities aimed at welfare and empowerment of the Persons with Disabilities, a separate Department of Empowerment of Persons with Disabilities (Divyangjan) (DEPwD) under Ministry of Social Justice & Empowerment was set up in May 2012.

Empowerment of persons with disabilities is an inter-disciplinary process, covering various aspects namely, prevention, early detection, intervention, education, health, vocational training, rehabilitation and social integration.

The disability community is very diverse. Some individuals with a disability may be employed, while others may rely on public benefits as their main sources of income. Some of the public benefits they receive might have limitations. Income, resource and savings limits often prevent individuals from enhancing their financial wellbeing and self-sufficiency as they concentrate efforts on retaining their benefits

Rather than charities, disabled people need sensitivity of the society and initiatives to make their life easy.. New and existing programs are available to help people with disabilities develop skills in financial management and self-sufficiency. Government keeps trying to support in every possible manner so that they can earn their livelihood.

We learn so many virtues from disabled people like patience, courage, positive thinking etc .Hence; this gives us all the more reasons to have a developmental approach towards them. With so many technological breakthroughs happening all over the world, the Governments have spent in Research and development and innovations which would make the life of disabled people happier and easier.

For example, the invention of artificial limbs caused a revolution. They are available to the most disabled people and they can reap benefits from them.

Also, educating them and giving them jobs based upon their physical condition will make them feel a "sense of achievement" and increase their happiness quotient.

Also, disabled people should be trained by specialists in their fields so that they can try and overcome their shortcomings to the maximum extent possible and lead a life which is satisfactory and happy.

5.3.1.1 Myths and Stereotypes

We are all individuals with commonalities and differences and that is true for persons with disabilities as well. As an instructor, it is important to remember to not show pity or put an individual up on a pedestal – everyone should be treated as equals regardless of one's abilities. When working with people with disabilities, it is important to avoid stereotypes. To debunk common stereotypes and myths, below are some key items to note about persons with disabilities:

- Persons with disabilities are all ages, come from diverse cultures and financial backgrounds.
- People with disabilities work.
- People with disabilities have families.
- Not all persons with disabilities are on or receive benefits such as ESI, Medicaid, etc.
- People with disabilities have goals and dreams.
- All people with disabilities do not necessarily want or need assistance.
- People who are blind or have low vision may wear glasses.
- People who are deaf may use their voice and may be able to read lips, but not all.
- Not all people who use wheelchairs are completely paralyzed – some may be able to walk short distances.
- Delayed or slow speech is not necessarily a sign of a slowed mental process.
- Persons with learning disabilities can be highly intelligent individuals; they simply have a different way of learning.

5.3.1.2 People's first language

Positive language empowers people and helps them feel respected and important. When writing or speaking about people who have a disability, it is important to put the person first, usually addressing them by name or including them as a member of a group, such as a student or co-worker. Group designations such as "the blind," "the retarded" or "the disabled" are inappropriate because they do not reflect the individuality, equality or dignity of people with disabilities.

Here are some general tips to keep in mind:

- **Offer to shake hands when introduced.** People with limited hand use or an artificial limb can usually shake hands and offering the left hand is an acceptable greeting.
- **Treat adults as adults!** Address people with disabilities by their first names only when extending that same familiarity to all others.
- **Ask First.** If you offer assistance (always ask before assisting someone), then wait until the offer is accepted. Then ask the individual with a disability for instructions on how you may assist them.
- **Relax.** Don't be embarrassed if you happen to use common expressions such as, "See you later" or "Did you hear about this?", that seem to relate to a person's disability
- **Give them respect** as any other individual.

5.3.2 Gender Sensitization

What is Gender?

The socially constructed and culturally defined roles, responsibilities, attributes, and entitlements assigned to people based on their sex assigned at birth in a given setting, along with the power relations between and among the assigned groups.

Gender equality is the concept that all human beings, irrespective of their sex or gender identity, are free to develop their personal abilities and make choices without the limitations set by stereotypes, rigid gender roles, or discrimination.

What is Gender Bias?

- Gender bias is the tendency to make decisions or take actions based on preconceived notions of capability according to gender. People with disabilities have families.
- Not all persons with disabilities are on or receive benefits such as ESI, Medicaid, etc

It is the process of raising awareness and inculcating empathy about one's own and the other gender. Since one of the most common area of discrimination is based on gender, there is a great need to sensitize the youth on gender related issues. This would strongly contribute in ensuring that equal roles, responsibilities, opportunities, and expectations are assigned to both men and women. Training on gender sensitization will help break the stereotypes around job roles, women's participation in particular trades, and would support in equal participation of men and women in the decision-making process.

5.3.2.1 Why is the Need for Gender Sensitivity

1. **Couple communication and decision-making**

   The role of men and women in household decisions about finances, food consumption, childcare, healthcare or travel often reflect power relations in the home. When power relations are unequal, it results in not only

one sided biased decision but also can increase risky sexual behavior and intimate partner violence. While it is important for women to play a larger role in important household decisions, such as financing, men should also become more involved in healthcare and household decisions around health.

Couple communication and joint decision-making have a positive impact on health outcomes.

2. **Access to opportunities and resources**

Gender-related factors also affect health outcomes through differential access to opportunities and resources like education, employment and healthcare.

- **Education:** Gender roles often restrict both boys' and girls' access to education which can have long-term effects on health outcomes. For example, more educated women and formally employed women are more likely to use family planning, which reduces the risk of unwanted pregnancy and potentially, the need for abortion
- **Employment:** In many contexts, women's traditional responsibilities are primarily domestic and they do not work outside the home. When they do, they are often part of the informal economy, in lower-paid and less-skilled jobs without opportunities to join unions or trade organizations that advocate for better pay or rights
- **Healthcare:** Women's mobility may limit their access to health services and existing programs intended to increase knowledge of family planning or other health information. Men often do not go to health clinics for their own care or with their partner because pregnancy and child health are seen as a "woman's domain.".

3. **Social, cultural and gender norms**

Norms related to gender, such as gender preference, masculinity and fertility, also influence health outcomes.

- **Gender Preference:** In India, China, and to a certain extent in some African countries, there is a gender bias in child healthcare. Preference for boys can lead to financial resources for education and other services, like healthcare, being differentially allocated within households. Reasons for this preference vary, and include the perception that boys will financially support their parents when they are older, and that families are obliged to pay dowries when their daughters marry.
- **Fertility:** In many areas, a woman's value is often measured by her ability to have children. This can lead women to put their own health or the health of their family at risk by starting pregnancy too early, when not yet physically matured, and giving birth without proper spacing or having more children than the household can support. For couples facing fertility issues, women often bear the brunt of household and community-level stigma and abuse for failing to conceive.
- **Masculinity:** Masculine ideas associating men with strength, virility, dominance and power may increase the number of sexual partners and inhibit the use of condoms, thereby increasing the risk for unwanted pregnancy or the transmission of STIs or HIV through unprotected sex or sexual violence. These masculine norms also may promote or normalize violence against women

Summary of Need for Gender Sensitization

- To provide balance to the society
- To provide equal opportunities to women and men
- To gauge views of all sections of society
- To distribute resources evenly
- To allow same personal freedom for men and women
- To even out the gender bias present in the society

How to stop gender bias

- Education that helps create attitudinal shifts towards gender bias and activities to spread awareness.
- Continuous efforts towards breaking myths and stereotypes around gender.
- Ensuring State accountability to implement various schemes, policies, laws, constitutional guarantees and international commitments.
- Institutionalizing gender sensitive processes within various systems such as law and programmes.
- Encouraging community ownership in preventing violations based on gender discrimination.

Sexual harassment at workplace is an extension of violence in everyday life and severely affects. Women's right to work in a safe and secure environment. While it is the responsibility of every employer to ensure safety of women at the workplace, it is also important for the trainees, both men and women, to be aware of all aspects of sexual harassment at the workplace. Skill training for both male and female trainees and professionals in the skilling ecosystem is centered around the following issues:

- What constitutes workplace sexual harassment?
- Where can the aggrieved complain about the same?
- What are the rights of the aggrieved?
- What is the redressal mechanism?
- Which are the bodies involved in addressing these complaints?
- What are the possible actions that can be taken against the accused?

Resources

Scan the QR code or click the link to access the videos or e-book.

Description	QR Code
Health related threats in apparel industry and control on them	https://youtu.be/POlQ27GQZp0
First aid	https://youtu.be/DQ7JPNgU8Wg

Gender sensitization	https://youtu.be/Wi1exdO1lig

Industry Visit

The purpose of visiting an apparel manufacturing unit is to get hands on knowledge about various processes involved in the work of an FCA. During the visit you have to interact with FCAs and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction at the apparel manufacturing unit. When you go to an apparel manufacturing unit, you should:

- Know about the production system.
- Understand the machine safety and maintenance rules of industry.
- Analyze how FCAs:
  - » Use and maintain personal protective equipment as per protocol.
  - » Maintain a healthy lifestyle and guard against dependency on intoxicants.
  - » Follow environment management system related procedures.
  - » Identify and correct (if possible) malfunctions in machinery and equipment.
  - » Store materials and equipment in line with manufacturer's and organizational requirements.
  - » Minimize health and safety risks to self and others due to own actions.
  - » Monitor the workplace and work processes for potential risks and threats.
  - » Carryout periodic walk-through to keep work area free from hazards and obstructions, if assigned.
  - » Report hazards and potential risks/threats to supervisors or other authorized personnel.
  - » Participate in mock drills/ evacuation procedures organized at the workplace.
  - » Take action based on instructions in the event of fire.
- Ask questions to FCAs/supervisors if you have any query.

Exercise

1. Heart rate of a healthy person should be:
   a) 40-60 beats per minute
   b) 70-110 beats per minute
   c) 80-100 beats per minute
   d) 60-100 beats per minute

1. What is not in Four A's of First Aid:
   a) Awareness
   b) Assessment
   c) Action
   d) Attitude

2. The symptoms of fracture:
   a) Pain
   b) Swelling
   c) Visible bone
   d) All of the above

3. Which degree of burn is explained as; Extremely Serious and requires many years with repeated plastic surgery and skin grafting to heal?
   a) 1st Degree Burn
   b) 2st Degree Burn
   c) 3st Degree Burn
   d) 4st Degree Burn

4. ..... is a level of medical care which is used for victims of life-threatening illnesses or injuries until they can be given full medical care at a hospital.
   a) Basic life support (BLS)
   b) CPR
   c) ABC
   d) All of the above

6. Follow Regulatory and Company's Rules and Greening of Job Roles

Unit 6.1 - Follow Regulatory and Company's Rules

AMH/N0104

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Carryout work functions in accordance with legislation and regulations, organizational guidelines and procedures.
2. Seek and obtain clarifications on policies and procedures, from your supervisor or other authorized personnel.
3. Apply and follow these policies and procedures within your work practices.
4. Provide support to your supervisor and team members in enforcing these considerations.
5. Identify and report any possible deviation to these requirements.
6. Explain the effect and importance of Greening of Job roles.

UNIT 6.1: Follow Regulatory and Company's Rules

Unit Objectives

At the end of this unit, participants will be able to:

1. Carryout work functions in accordance with legislation and regulations, organizational guidelines and procedures.
2. Seek and obtain clarifications on policies and procedures, from your supervisor or other authorized personnel.
3. Apply and follow these policies and procedures within your work practices.
4. Provide support to your supervisor and team members in enforcing these considerations.
5. Identify and report any possible deviation to these requirements.
6. Explain the effect and importance of Greening of Job roles.

6.1.1 Defining Compliance for Your Organization

According to Merriam Webster the dictionary definition of compliance is as follows:

1. The act or process of complying to a desire, demand, proposal, or regimen, or to coercion.
2. Conformity in fulfilling official requirements.
3. A disposition to yield to others.
4. The ability of an object to yield elastically when a force is applied.

Fig.6.1.1: Regulatory Compliance

Supervisory compliance for industries, world- wide falls under the second definition. There are many managers, general councils, and policy officers that would consent in agreement at any of the other definitions as well. Let's discuss, what is compliance? Whether an organization is confronting an external regulatory compliance from a government agency, or seeks to comply with its own organizational mandates, policies or procedures, compliance in actuality means conforming to requirements and a proof that your organization has done so. This is usually attained by the scheming and development of managerial policies that will map out the projected code of conduct.

From a policy's point of view, there are many aspects that impact an organization's policies, including legislative and regulatory requirements, organizational best practices, and the market demands. If we look at government/ public sector agencies, financial service businesses, and healthcare providers - we find that they are controlled and must develop internal policies in order to ensure compliance. The actual trial comes from the juncture of practice with the laid policy.

After that, they must adopt ways to enforce those policies and measure their effectiveness. Initially this may seem to be an easy and convenient task. But the dilemma is creating a policy – without any mechanism, may it be manual, automated, or third-part, to measure and monitor compliance of the policies is very difficult. In order to build effective policies, we must not only have an understanding of the statutory requirements that will shape

the policy within our organizations, but how these policies relate to the business practices, the workforce, the methodologies of operations and the technologies within the corporation.

Irrespective of the requirements to which an organization must obey, a well-planned model is essential which will be one that assimilates strategies with their people, processes, and technology. This includes education, monitoring, and enforcement. Organizations should look to use machineries and to develop procedures that make it easier to do the right thing or to simply disregard the policy all together. In conducting performance audits, an assessment should be made of compliance with applicable laws and regulations when necessary to satisfy the audit objectives. The auditor should design the audit to provide reasonable assurance of detecting illegal acts that could significantly affect audit objectives. The auditor also should be alert to situations or transactions that could be indicative of illegal acts that may have an indirect effect on the audit results.

6.1.2 Significance of Compliance in Indian Garment Industry

Compliance is the standard for the product which ensures that it is aligned to its industry's qualitative demands. This also includes audits and inspections which are crucial to a proper and formal work environment. Compliance and its demand is rapidly growing in today's industrial scene since globalization of manufacturing standards has also created a demand for ethically created products. This standard of compliance is crucial because of the increase in export of garments from India.

Social Compliance

The treatment of the employees by its business constitutes social compliance. This also includes their environment and their personal perspective on social responsibility as an employee. The treatment of employees regarding wages, work conditions and working hours. A compliance audit is necessary in order to determine if the company meets standard environmental laws.

Compliance Audit

Process Safety Management, Risk Management Programs, and Process Security Management are all organised and provided by audits and assessments. Compliance and its verification is carried out with audits that focus particularly on these policies and procedures. The design and implementation of these audits ensures this compliance. Additionally, all sorts of deficiencies can be addressed and solved through corrective action.

In India, compliance audit consists of a thorough examination of orders, regulations, rules and directions for dealing with prudence, legality, transparency and adequacy. It is the job of auditors to collect information by reviewing documents, visually observing the site and staff interviews. This data is cross checked with applicable regulations and permits to ensure how well the operation is when sieved through applicable and required legalities.

There are three main phases of compliance audit in India:

1. **Pre-audit:** It includes planning and organising the audit; establishing the audit objectives, scope and etiquette; and reviewing the design of the program by inspecting documentation
2. **On-site audit:** It includes conducting personnel interviews, reviewing records, and making observations to assess program implementation
3. **Post-audit:** It includes briefing the management on audit findings, and preparing a final report

Therefore, Indian apparel manufacturers need to follow Government guidelines, and social compliance standards not only within their sphere of operations, but also insist their vendors, distributors, and other collaborators involved in the supply chain to do the same.

6.1.2.1 Core Labour Standards

International labour standards have grown into a wide-ranging system of gadgets on work and social policy, backed by a administrative system intended to address all sorts of complications in their submission at the national level

- Removal of Discernment in Employment and Occupation
- Freedom of Association
- Right to Collective Bargaining
- Elimination of all Forms of Forced or Compulsory Labour
- Effective Abolition of Child Labour

Apparel industry players would ensure that labour contractors don't involve forced labour or child labour and get the supply chain of the suppliers audited. Apparel Export Promotion Council (AEPC), a top organization of Indian apparel exporters, has envisioned a garment factory compliance program 'Disha' -Driving Industry towards Sustainable Human Capital Advancement. The prime objective of this body is to make India a global benchmark for social compliance in apparel Industrial. This Common Compliance Code design will prepare the Indian apparel industry on a mutual platform towards a more social and ecologically compliant industrial atmosphere.

6.1.3 India Adopting Universal Standards on Child Labour

The compliance level of garment factory is very high for Indian exporters. To ensure that all standards are being complied with, the big international companies, mindful of their branding, often generate and follow their own compliance standards. Numerous U.S. companies have incorporated "child labour" in their code of conduct, due to tenacious signal of child exploitation in the industry.

6.1.3.1 Common Compliance Code

There is a compliance exhaustion in the Apparel Industry,. Although they are trading with the global brands, the apparel sellers still don't consent that compliance is an integral management practice. The Indian apparel export industry has been indisputable to implement zero tolerance on child labour and cleanse the supply chain.

"This common compliance code will not only give the opportunity for the industry to negate international claims against child labour promotion in the garment industry, but will also help to improve the image of the industry and win more international businesses," as per PremalUdani, Chairman, Apparel Export Promotion Council (AEPC).

6.1.4 Role of AEPC in Indian Garment Industry

The apparel industry of India is one of the significant export segments. It enjoys a good global ranking because of its quality and price affordability. But there is an emerging need to increase effectiveness in the social domain as the industry faces various labour, compliance and background situations.

Being a labour rigorous industry, social compliance is becoming an integral issue for this sector. The apparel export promotion council of India (AEPC) under the textiles ministry is plateful domestic textile trade to follow the global norms through development and application of tools to help workshops certify, monitor and improve universal standards.

Fig.6.1.2: AEPC Logo

AEPC's assistance to garment exporters

AEPC brings about invaluable backing to Indian garment exporters and also the international buyers who select India as their favoured tracing terminus for garments. The body today has grown-up to become the most powerful connotation for promotion and facilitation of garment exports. With an objective of structuring a strong ground for Indian exporters, AEPC is devoted to provide various podiums which would help in increasing garment exports.

Role of Apparel Export Promotion Council in India

In India, the Apparel Export Promotion Council (AEPC) is committed to legal compliance and principled business Practices. It encourages members/exporters to comply with all applicable laws and regulations of the country to meet international compliance standards. Further, the council has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) that aims to spread awareness regarding the importance of compliance among garment exporters.

6.1.5 Indian Garment Industry and Social Responsibility

The apparel industry of India, is one of the biggest segments among the various industries existing. It is also one of the oldest and an eminent industry in terms of output, investment and employment. A sector which has a global market share and has earned reputation for its permanence, worth and magnificence. The industry is growing at a fast pace with change in customer taste and inclinations. There are numerous factors impacting a change in customer preferences. Few of them are here:

- Rise in disposable incomes
- Government policy focused on fast-track growth
- Convenience of shopping at departmental stores and shopping malls
- Increasing demand for branded apparels and fashion accessories
- Boom in the retail industry

6.1.5.1 International Labour Standards

The Indian apparel industry had established itself substantially not just in the domestic but global market too. The improved density from international apparel buyers to comply with labour principles and rights in Indian garment factories has resulted into a vast number of labels and code of conduct.

6.1.5.2 Corporate Social Responsibility

Corporate social responsibility (CSR) fundamentally connotes that the establishment should work in a principled way. It should work in the best interest of the parties associated with it. The notion of social accountability and responsibilities in Indian apparel sector is fastening acceptance. Increasing number of companies are tiresome to work in a mode to defend the interests of the workforce, clients, contractors and the society.

6.1.5.3 Social Responsibility in the Garment Industry

Garment firms have social responsibility associated with workforce and the surroundings. Social responsibility in the global clothing industry gives a deep examination of labour practices and values. But the ways by which the various organisations takes up to accomplish their social accountability may be different. A garment factory can fulfil its social responsibility in the following manner:

- By creating and providing a challenging environment to the workforce.
- Creation and provision of fair book of policies for any kind of employee dispute, if any.
- Affirm a safe and positive working environment for the employees.
- Prohibit child labour and abolish any kind of child abuse.
- Provision of equal opportunities to the employees to voice their feedback and have an effective policy for the solution of dispute.
- Ensure ethical recruitment, training, remuneration, appraisal and other policies.

6.1.6 Indian Apparel Trade and Compliance Standards

With the increasing globalisation, a lot of prominence has been placed on global compliance standards in the garment industry. Factories involved in the international trade must keep a proper check of the garment factory compliance at regular interludes. Therefore, every apparel export business needs to have a proper understanding of compliance rules for foreign trade.

6.1.6.1 Why Code of Ethics is Required

The code of ethics is concerned with the quality of the products and services from the workstations along with the working environment that should meet the provisions of audits and assessments. If followed sincerely, these ethics will result into:

- Cumulative national affordability in terms of social compliance.
- Growing competitiveness of small scale industrialists.
- Dropping burden on manufacturers.

Some of the compliance codes in Indian garment industry are listed below.

6.1.6.2 Working Hour & Wage Rate Compliance

- Garment workshops should ensure a confirmation that employees should get minimum wages as per the domestic law and according to their working hours spent by them in the industry.
- Employer should confirm an equal wages to both men and women employees who are performing the same work or work of a similar nature.
- Workforce employed for more than nine hours on any day or for more than 48 hours in any week, shall be qualified to wages at premium legal rates for such overtime work.
- Every employee must be entitled to one holiday in a week. Whenever a worker is required to work on a weekly holiday, he is to be allowed a compensatory holiday for each holiday so lost.

6.1.6.3 Workplace & Work Environment Compliance

- Businesses units should see that they are providing a proper clean, hygienic, well-ventilation, sufficient light and air to provide the workforce with standard work environment. A comfortable workstation with a clean and neat workplace is a mandate.
- Indian garment industries should ensure that the workers are given a comfortable sitting chair with back support and proper leg space.

6.1.6.4 Non-discrimination Compliance

Under federal and state laws, it is in contradiction of the law for proprietors to differentiate staffs and job applicants and/or harassment to occur with their organizations. It is also against the law to treat people unethically or bother them because of the age, disability, homosexuality, marital or domestic status, race, sex or transgender status of any relative, friend or colleague of a job applicant or employee Employers, managers and supervisors must treat all their job applicants and employees on the basis of their individual merit and not because of irrelevant personal characteristics. They must also do their best to make sure that their employees are not harassing any other job applicant or employee.

6.1.6.5 Social Compliance in India

Religion, community, culture or belief characteristics should never be the basis of distinction among employees by the organisation. All the terms and conditions of employment should be based on a person's ability to do the job. The mandate for social compliance is growing every day. One can accomplish a dynamic and vigorous compliance system only when the workforce is provided with an equal stand to voice their concern and have consultative instrument at the workplace.

The Apparel Export Promotion Council of India (AEPC), a summit framework of Indian apparel exporters, runs all social compliance services to meet international global standards. This council trains and monitors industrial unit to upgrade the factory conditions and labour values and standards.

6.1.7 Health and Safety Compliance in Indian Garment Industry

Apparel industry has won increased attention from consumers, social workers, welfare organisations and trademarked international buyers. Many global players are demanding that their "code of conduct" should be complied to, before entering into an agreement. Nowadays, continuous observance to quality standards and employee contentment have become significant bounds for gauging the company's performance.

Apart from the growing quality of outputs that meet transnationally recognised standards, it is essential for the suppliers to improve safety and health compliance code and provide proper working atmosphere in their work locations.

Numerous overseas countries have established various international compliance standards on safety and health compliance. Exporters should follow these codes to live on in the global market. One should not under-estimate the benefits drawn from regular drilling of compliance codes of conduct which can bring higher price of yields, less employee turnover rate, smooth trade relation as well as global image & status.

6.1.7.1 Need for Compliance Codes

There is prominent impact of social compliance on company's economic outcomes. Companies should adopt compliance code to protect their goodwill and brand name in the market. The Indian apparel industry needs to be hard-hitting on compliance rather than opposing with other developing countries manufacturing low-cost garments.

6.1.7.2 Compliance Code Guidelines

Apparel factories ought to contemplate the below mentioned guidelines when complying with safety and health compliance code standards:

- Trades should comply with international standard code, such as ISO or importing countries standard code to become competitive in international markets.
- It is necessary for workers involved in loading and unloading operations.
- Young aduls (between 15 to 18 years) are not allowed to work on any dangerous machine without sufficient training and supervision.
- Ear plugs or muffs should be given in places with excessive sound such as generator rooms and embroidery rooms.
- Factories should have effective fire extinguisher with proper usage instructions.
- Eye-wear and face shields should be a must, providing in areas with danger of flying objects, sparks, glare, hazardous liquids and excessive dust.

Code to protect their goodwill in the market

This industry needs to be tough on compliance rather than challenging with other developing countries manufacturing inexpensive garments. In India, the Apparel Export Promotion Council (AEPC) is committed to legal compliance and ethical business practices and encourages members/exporters to comply with all applicable laws and regulations of the country to meet international compliance standards.

The council has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) that aims to spread awareness regarding the importance of compliance among apparel exporters.

6.1.8 Compliance Code Guidelines for Indian Garment Industry

The Indian apparel industry supports considerably to India's export earnings. India has industrialised as a major following destination for various buyers. The USA and the EU endure to be the most domineering markets for Indian apparel industry, bookkeeping for about two-third of India's textiles exports. These countries have been demanding upon compliance to certain social, environmental and safety standards and norms by the manufacture units involved in export business. Corporate codes of conduct that discourses labour standards vary from corporation to corporation and location to location. Some of the common Indian Garment industry compliance code guidelines are:

- Exporters must not be intricate in unfair labour practices but limited to interferences in matters regarding freedom of association.
- Exporters shall recompense workforce for all hours operated. Workers on a piece rate payment scheme or any other incentive scheme should be paid according to that.

- Exporters shall not illogically restrain the liberty of movement of workers, including movement in canteen during breaks, using toilets, accessing water, or to access necessary medical attention, as a means to maintain work discipline.
- Exporters are about to offer workers with paid annual leaves as required under local laws, guidelines and processes. Exporters shall not impose any undue limitations on workers' use of annual leave or taking any type of sick or maternity leave.
- There shall be no alterations in workers remuneration for work of equal value on the basis of gender, race, religion, age, nationality, sexual orientation, social political opinion, disability or ethnic origin.
- Exporters shall not threaten female workers with firing or any other employment conclusion that adversely distresses their service status in order to avert them from getting married or becoming pregnant.
- Exporters shall confirm that proper ventilation systems are installed within their premises to prevent airborne exposures which may affect the health of workers.
- Members shall not custom any form of physical or mental, emotional violence, threats, harassment, or abuse against workers seeking to form organisations or participating in union activities, including strikes.
- Workers shall be permitted to at least 24 successive hours of rest in every seven-day period. If workers must work on a rest day, another successive 24 hours rest day must be provided.
- Exporters shall pay workers at least the legal minimum wage or the usual industry wage, the one that is Higher. This indeed is the most essential code of compliance for Indian Industry.
- Garment exporters must ensure that the minimum age requirement to unsafe employment shall not be less than 14 years. This is the most significant concern in the country. Each worker has the right to enter into and to terminate their employment freely. Indian apparel makers need to follow all the compliance rules to comply with global standards. Often companies adopt industry compliance codes to project a positive image and protect their goodwill in the market. The Indian garment industry needs to be strong on compliance instead of competing with other developing countries manufacturing inexpensive garments.

Indian apparel makers need to follow all the compliance rules to comply with global standards. Often companies adopt industry compliance codes to project a positive image and protect their goodwill in the market. The Indian garment industry needs to be strong on compliance instead of competing with other developing countries manufacturing inexpensive garments.

6.1.9 India Complying with International Standards on Child Labour

Child labour has been a grave crime in India. It still exists. Children are in poverty, ignorance, and corruption due to illiteracy. Child labour superfluities under many conditions such as discernment (based on gender, ethnic, or religious issues), inaccessibility of educational and other substitutes, weak enforcement of child labour laws, etc. Large global firms, conscious of their image, often set up their own compliance standards for the exporters to ensure that all standards are being complied with.

Various companies of U.S originality have included child labour in their code of conduct, due to tenacious evidence of child exploitation in the industry. In worldwide market, the buyer's compulsory requirement is to have an audit. As India is a leading garment exporter, the level of garment factory compliance is very high for Indian exporters. The child labour issue is one of the very important aspect that the audit checks. Therefore, all the export units must be highly compliant on issues related to child labour.

6.1.5.1 Code of Conduct for Garment Exporters

- Garment exporters must safeguard that the bottom limit of the age requirement to non-hazardous employment should not be less than 14 years. Moreover, all young workers (between 14 to 18 years) must be sheltered from doing any work that is likely to be dangerous or that may be injurious to their health and physical, mental, social, or moral development. Exporters must detect all legal necessities for work being performed by lawful young workers.
- Further, the trainees or occupational students shall not be under the legal age for employment (as provided under the applicable laws). They cannot be used on regular production lines as long as they are trainees and unless their pay and other benefits are at par with the regular workforce.
- A proper process is followed for checking the age of the workers. The minimum certification and credentials required to be maintained shall include- proof of age certificates by registered/ licensed dentists, birth certificate, school leaving certificate, national identity like passport, driving license, voter card etc. or any other document required under the applicable laws.

Apparel industry players would now make sure that labour contractors don't engage child labour and get the supply chain of the suppliers audited. Apparel Export Promotion Council (AEPC) has intended a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) to make India a global benchmark for social acquiescence in apparel manufacturing and export. This Common Compliance Code project will prepare the Indian apparel industry on a mutual platform towards a more social and environmentally accommodating industrial environment.

6.1.10 Green Jobs

"'Green jobs' are defined as jobs that reduce the environmental impact of enterprises and economic sectors, ultimately to levels that are sustainable."

Green jobs can produce goods or provide services that reduce environmental impact, such as green buildings or clean technology adoption. An important section of green jobs lies in sustainable or clean manufacturing. India has already begun preparation towards a green transition by institutionalizing capacity buildings for green jobs through jobs, including legal regulations and skill mapping. The country is accelerating the expansion of green jobs in large industries like automotive, textile, brick manufacturing, power sector, and green buildings. It is gradually expanding its coverage to hard-to-abate sectors such as steel, thermal power plants, and manufacturing SMEs.

India will soon be the most populous country in the world – and home to one of the youngest populations. India is the world's third-largest energy consuming country, with 80 per cent of demand met by coal, oil and solid biomass. Despite its efforts, India is predicted to be among the top three emitters by 2030. Millions of Indian households are set to buy new appliances, air conditioning units and vehicles.

Rapid growth is expected in building stock, other infrastructure, and construction materials. In recent years, India created a massive expansion in renewable energy. India's efforts at promoting LED lighting are a huge success story. Over 367 million LED bulbs, 7.2 million LED tube lights and 2.3 million energy efficient fans have been distributed. This has brought big savings in power use, greenhouse gas emissions and household bills.

India has also taken steps to control plastic pollution, including bans on single-use plastic and strengthening extended producer responsibility. India has also committed to restoring 26 million hectares of degraded land by 2030. But India, like every nation, must do more. And doing more is in the best interests of the entire nation. A recent World Economic Forum estimate suggests that India's decarbonization journey represents a USD 15 trillion economic opportunity by 2070. This journey could create as many as 50 million net new jobs.

Fig.6.1.3: Diversified green jobs

About sustainability and sustainable workplace

Sustainability, greening the corporation, environment management are gradually becoming a part of the corporate vocabulary. The way the natural resources are extracted and consumed from earth, it is going to be very difficult to replenish them timely. It is often discussed in various forums that for generating the resources we spend in one year; earth takes around 1.5 years for the re-generation. Hence, it can be assumed that there will a requirement of the capacity of almost two Earths by 2030 to keep pace with the present natural resource consumption, and the requirement will be of three planets by 2050.

The current requirement is towards developing long-term, meaningful relationships, and self-discipline for attaining effective results. Thus, the design of the workplace is such that supports the basic and core idea in a more accommodating and comprehensive manner.

A Green workplace is an eco-friendly and focused organisation and leans towards the adoption of business practices that are justifiable in nature, energy efficient, and well suited to the complex as well as the ever changing world of business. It advocates the model based on 3Rs — reduce, reuse, recycle. It encompasses green competencies, green attitude, and green behaviour, which is combined synergistically to help the organisation become green or sustainable. Values are the essential characteristic that both employees and organisations uphold and operate at multiple levels (societal, organisational and personal), thus playing a fundamental role in shaping the organisation's culture with regard to a shift towards greater sustainability.

The idea of introducing green initiatives into the workplace can feel a little daunting at first. And while it may feel overwhelming trying to figure out where to start, there are actually lots of ways we can be more green in the office without bringing the whole forest inside, without huge cost implications and with long-term benefits to the company, employee well-being and future spend. Implementing a few simple changes for a more sustainable, green workplace can be really effective in reducing your business' impact on the environment.

Sustainability is now counted as one of the major pillars of apparel export business and a growth tool. Though its key areas involve saving of energy, water, more greenery in the factories, maximum use of natural resources, green factories, there are many other initiatives which are being taken by various companies as per their need, priorities, and with the changing sustainability landscape, bench marks and issues are also evolving. All these efforts are generating great results, bringing buyers closer to them and creating a sense of profitability and responsibility amongst the companies towards the people and the planet.

A Few Green workplace initiatives

1. Discourage food and water wastage
2. Switch off the lights or power when not in use
3. Switch off the sewing machine when not in use
4. Stop using Single use Plastic
5. Segregate waste as per waste management/disposal policy
6. Any sort of wastages like empty glasses/bottles/plastics/containers etc should be kept in a specific area to be recycled
7. Throw waste only in the allocated basket or trolley
8. Minimise use of paper
9. Use of LED lights
10. Installation of solar panels

Encourage similar practice at home also.

7. Soft Skills

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Interpret the basic meaning of Soft Skills, their components and their benefits.
2. Interpret Work Readiness and its significance.
3. Explain communication process.
4. Explain about verbal and non- verbal communication.
5. Explain about the barriers in communication process.
6. Maintain cleanliness and hygiene.
7. Identify specific uniform guidelines
8. Maintain positive body language while speaking.
9. Interpret good eating habit and their impact on health.
10. Develop a positive attitude and behavior.
11. Explain team dynamics.
12. Explain how to manage relations.
13. Learn about Stress and anger management skills.
14. Learn to develop leadership qualities.
15. Explain about what is social interaction and what are social interaction behaviors.
16. Practice Self introduction in public.
17. Participate in group discussions in the class.
18. Identify the importance of team building and team work.
19. Explain about the time management.
20. Develop time management skills.
21. Learn about effective time planning.
22. Interpret the importance of resume.
23. Learn how to prepare a resume.
24. Explain the procedure of interview.
25. Practice mock interview.
26. Identify how to present themselves during an interview.

UNIT 7.1: Introduction to the Soft Skills

Unit Objectives

At the end of this unit, participants will be able to:

1. Interpret basic meaning of Soft Skills, their components and their benefits.
2. Explain the components and their benefits.

7.1.1 What is a Soft Skill?

Soft skills are personal attributes that describes an individual's ability to interact with others. Soft skills is a term often associated with a person's EQ, the cluster of personality traits, social graces, communication language, personal habits, friendliness and optimism that characterise relationship with other people. Soft Skills complement hard skills which are occupational requirements of a job and many other activities. They are related to feelings, emotions, insights and an inner knowing.

Soft skills have more to do with who we are than what we know. As such soft, skills encompasses, the character traits that decide how well one interact with others and are usually a definite part of one's personality.

According to a survey the long term success in job is 75 % due to soft skills and 25 % due to technical knowhow. Soft skills also determine how satisfied and happy one remains in professional and personal situations.

Fig.7.1.1: Soft skills

7.1.2 Components of Soft Skills

- Adaptability
- Emotional Strength
- Leadership Quality
- Team Playing Ability
- Decision Making
- Interpersonal Communication
- Negotiation Skills

7.1.3 Benefits of Soft Skills

Some of the benefits of Soft Skills are as:

- Increased credibility with customers.
- Increased customer satisfaction.
- More productive employees.
- Out service the competition.
- Recognition from the industry, employer and peers.
- New employment opportunities.
- Increased ability to perform on the job.

UNIT 7.2: Effective Communication

Unit Objectives

At the end of this unit, participants will be able to:

1. Explain the meaning of Communication and process of communication.
2. Elaborate about the types of communication.
3. Identify the barrier in effective communication.

7.2.1 Introduction

In the information age we have to send, receive and process huge number of messages everyday. But effective communication is more than just exchanging information, it also about understanding the emotion behind the information. Effective communication can improve relationship at home, work, and in social situations by deepening our connections to others and improving teamwork, decision making and problem solving.

Effective communication skill is a learned skill, it is more effective when it's spontaneous than formula.

7.2.2 The Communication Process

The process of conveying information through the exchange of thoughts, ideas, feelings, intentions, attitude by speech, gesture, writing etc. is known as communication. It is the meaningful exchange of information between two or more participants.

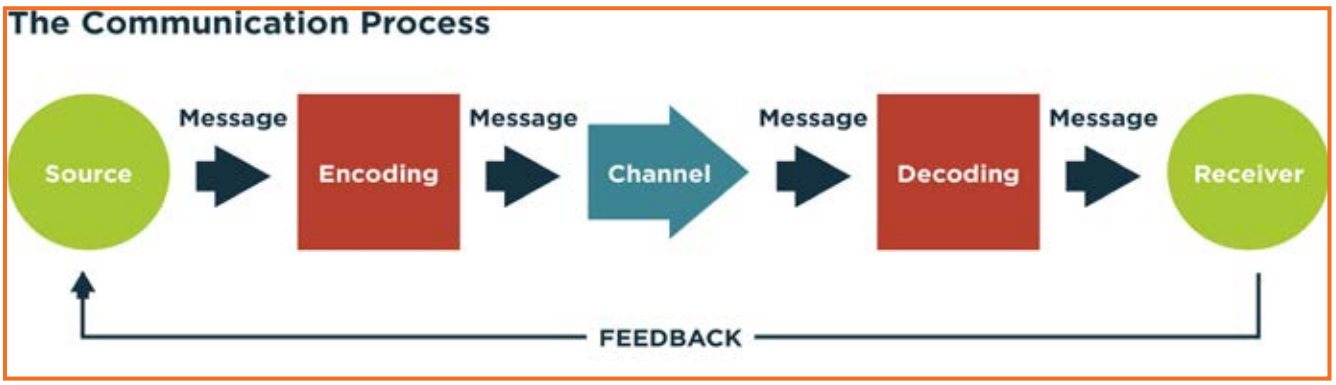


Fig.7.2.1: The Communication Process

Communication requires a sender, a message, a medium and a recipient. Communication process is complete only when a receiver understands the sender message.

Communication with other involves three steps:

1. **Message:** First information exists in the mind of the sender. It can be a concept, idea, formation and feeling.
2. **Encoding:** A message is sent to the receiver in words or other symbols.
3. **Decoding:** Lastly the receiver translates the words or symbols into a concept or information that a person can understand.

7.2.3 Verbal and Non-Verbal Communication

Communication can be categorized into three basic types. These include:

1. **Verbal Communication:** It means you listen to a person to understand their meaning. Verbal communications have the advantage of immediate feedback, are best for conveying emotions and can involve storytelling and crucial conversations.
2. **Written Communication:** letters, books, newspapers are printed messages in which you read their meaning. They are asynchronous, can reach many readers and are best for conveying information.
3. **Nonverbal Communication:** It means you observe a person and infer meaning. Both verbal and written communications convey nonverbal communication and are also supported by body language, eye contact, facial expression, posture, touch and space.

7.2.4 Communicating Effectively Identifying Barriers

There are many reasons why communications fail. These failures are the result of barriers in communication which may occur at any stage in the communication process. Barriers may lead to one's message becoming distorted and therefore risk wasting both time and money by causing confusion and misunderstanding. Effective communication involves overcoming these barriers and conveying a clear and concise message.

Fig.7.2.2: Barriers in Communication

A skilled communicator must be aware of these barriers and try to reduce their impact by continually checking understanding or by offering proper feedback.

Dealing with Barriers

- Use simple, easily understood word. Overcomplicating makes things confusing
- While speaking in other language always prepare beforehand
- Always give or take feedback to ensure the effectiveness of communication
- Be alert to cues
- Listen, listen, listen …

7.2.5.1 Some Tips for Active Listening

- Concentrate what the person is talking about and not on noise or other external distractions.
- Understand his emotions and you get it all right. Is the speaker angry, happy or plainly inquisitive?
- When the speaker is saying or telling something, don't break the chain of his thoughts.
- Don't avoid completing sentences of the speaker. Let them speak and speak only after they finish.
- It's alright if you haven't understood at first chance. Request to repeat the information.
- Practice makes a man perfect. Listen intently, focus and ignore other noises. Listen more and talk when required.

It takes a lot of concentration and determination to be active listener. Old habits are hard to break and if you're listening habits are not good then you have to break those. Start listening deliberately and remind yourself frequently that your goal is to hear truly what the other person is saying.

UNIT 7.3: Grooming and Hygiene

Unit Objectives

At the end of this unit, participants will be able to:

1. Maintain cleanliness and hygiene.
2. Keep their dress clean and tidy.
3. Maintain positive body language while speaking.
4. Enable to perform more of the do's than the don'ts.
5. Avoiding bad things such as gutkha and alcohol.

7.3.1 Personal Grooming

Personal Grooming is the term for how people take care of their body appearance. Once you enter your store/ department you need to be dressed in full uniform as per company norms, and also properly groom yourself as per the service standards.

Personal grooming not only makes us presentable to other people but good personal hygiene is essential for good health. Habits that are considered personal grooming include, bathing, dressing, applying makeup, hair removal and taking care of one's teeth and skin.

7.3.2 Positive Body Posture and Language

- Clean hands at all times as they mostly will be handling merchandise and customers.
- Avoid biting nails on the floor.
- Manage body odour & bad breath to be under control as they are offensive to the customer.
- Maintain straight & upright posture on the shop floor.
- Slouching on the floor, hands in pockets, hands on the hips are not courteous to the custome.
- Keep your hands out of your pocket
- Don't Fidget. Fidgeting is a clear sign of nervousness
- Keep your eyes forward. This indicates that you are interested in communication with other.
- Stand up straight with your shoulders back. It communicates confidence.
- Don't cross your arms when meeting other persons.

7.3.3 Personal Hygiene

Personal Hygiene is the set of practices to follow to preserve one's health. Maintaining a high level of personal hygiene will help to increase self-esteem while minimizing the chances of developing infections. Poor personal hygiene can have significant implications on the success of job applications or chances of the promotion.

7.3.4 Physical Fitness

Apart from following these hygienic practices, one should also be physically fit. Physical fitness is an outcome of regular exercise. Exercise may be of many different forms. Jogging, morning-walk, weight-lifting, gym, swimming, cycling, yoga and many more.

Things to be avoided

There are certain habits that have severe ill-effects on one's health. Such habits should be avoided for a healthy life.

- Alcoholism
- Tobacco / Smoking
- Gutkha

UNIT 7.4: Development of Interpersonal Skill

Unit Objectives

At the end of this unit, participants will be able to:

1. Develop a positive attitude and behaviour.
2. Describe the goal setting.
3. Motivate for team participation at work.
4. Practice relations and stress management at work.
5. Develop leadership qualities.

7.4.1 Introduction

Interpersonal skill development is the blend of different traits of day to day life that play an important role in creating our impression in other's mind. It starts from inside. The role of interpersonal skill development is to help us understand how to make choices about our attitudes and actions.

These include various traits like:

- Positive Attitude
- Motivation
- Goal Setting
- Team Work
- Managing Relations
- Etiquette
- Stress and Anger Management
- Conflict Resolution

7.4.2 Goal Setting

Goal setting is a powerful process for thinking about your ideal future. The process of setting goals helps you to choose where you want to go in life.

Goal setting involves establishing specific, measurable, achievable, and realistic and time targeted goals. Goal setting helps people work towards their own objectives. Goals are a form of motivation that sets the standard for self-satisfaction with performance. Achieving the goal one has for oneself is a measure of success and being able to meet job challenges is a way one measures success in the workplace.

1. Financial
2. Education
3. Family
4. Health
5. Public Service

7.4.3 Team Dynamics

A team comprises a group of people associated for a common purpose. Teams are especially appropriate for conducting complex tasks. A team is a special instance of a group in which shared goal is the common thing. This creates a dynamic between team members and because they are dependent on each other for success. For example a sports team wins or loses as a whole.

Factors of Team Dynamics

- Tolerance and Cooperation
- Set aside feelings of caste, creed, profession
- Put up with each other
- Identify strengths of each
- Who can do what

7.4.4 Managing Relations

We all have different personalities, different wants and needs, and different ways of showing our emotions which affects people around us.

70% of the workplace learning is informal, when people talk to each other at work they actually are learning to do their job better. Friendlier workers are effective communicators, more productive and trusted more by employers and co-workers.

Stress and Anger Management

Anger is a normal and a healthy emotion. Managing anger can be a problem for some people who find it difficult to keep their anger under control. There are many health issues related to a unresolved anger such as high blood pressure, heart attack, depression, anxiety, colds and flu and problems related with digestion.

Always remember:

- Avoid unnecessary stress, learn to say no and take control of your environment.
- Express your feelings instead of boiling them up.
- Accept the things you can’t change.
- Learn to forgive.
- Don’t react immediately.
- Post pone for a few seconds whatever you wish to say or do.
- Take a deep breath.
- Speak when you have calmed down.

7.4.5 Etiquette

Etiquette are the customs or rules governing behaviour regarded as correct or acceptable in social and official life. It includes:

- Making Positive Impression
- How you treat with people
- Communicating at Workspace
- Work Ethics
- Discipline
- Commitment to work:
- Punctuality
- Ownership and responsibility
- Striving to excel:

7.4.6 Conflict Resolution

What is a Conflict?

A problem or a situation that may be difficult to understand or to deal with.

Why do we need to resolve conflicts?

- If a problem is not solved or addressed at the right time it may blow out of proportion
- An unsolved problem can be like Cancer which spreads and translates itself into all other areas in life
- Unsolved problems may lead to increased levels of bitterness and frustration
- It may foster bad habits like back-biting, gossiping, etc.
- Persons involved in conflict may lose focus and target each other's character instead of the specific behavior to be modified.

How to work out Conflicts?

- **STOP** - before you lose control of your temper and make the conflict worse.
- **SAY** - what you feel is the problem. What is causing the disagreement? What do you want?
- **LISTEN -** to the other person's ideas and feelings.
- **THINK** - of solutions that will satisfy both of you.

If you still can't agree, ask someone else to help you work it out.

7.4.7 Leadership Skills

The ability to lead effectively is based on a number of key skills. These skills are highly sought after by employers as they involve dealing with a number of people in such a way as to motivate, enthuse and build respect. Some of the qualities that every good leader should possess are:

- Honesty

- Ability to delegate
- Ability to take initiative
- Good communications skills
- Confidence
- Commitment
- Positive Attitude
- Creativity
- Be decisive
- Focus on the big picture

UNIT 7.5: Social Interaction

Unit Objectives

At the end of this unit, participants will be able to:

1. Analyze the social interaction.
2. Define duties and responsibility.
3. Explain about the team work.

7.5.1 Social Interaction

Social interaction is the process by which we act and react to those around us. It includes those acts people perform toward each other and responses they give in return. Social interaction includes a large number of behaviours. They are:

- Exchange
- Competition
- Cooperation
- Conflict
- Coercin

7.5.2 Self- Introduction

Everyone in their lifetime, have to introduce themselves to the audience or a class. It is a speech which lies around 3 minutes to 5 minutes. It is very important that it gives the first impression to other about us. It has a great impact on your self-esteem and self-confidence. It's helpful in:

- Feeling better about yourself
- Boosting your confidence
- Building your self esteem
- Making friends
- Feeling in control

Points for Self Introduction

- Wishes
- Purpose
- Name
- Father's Name
- Family
- Profession
- Location
- Hobbies/Habits
- Life Aim
- Achievements
- Favourite Person's or Ideal
- Your Strengths and Weakness

7.5.3 Cooperation

Cooperation is the process of groups of organisms working or acting together for their mutual benefit. Cooperation among family members, friends and peers is very common and healthy. It is the backbone of any society.

Family cooperation provides an avenue for a family to come closer. It increases coping skills and decision making. **Experiential Knowledge:** contributes to solving problems and improving quality of life.

- **Emotional support:** Esteem, attachment and reassurance
- **Instrumental Support:** Material goods and services.

How to be a cooperative person

For being a cooperative person following things needs to be done:

- Listen carefully to others and be sure you understand what they are saying.
- Share when you have something that others would like to have.
- Take Turns when there is something that nobody wants to do, or when more than one person wants to do the same thing.
- Compromise when you have a serious conflict.
- Do your part the very best that you possibly can. This will inspire others to do the same.
- Show appreciation to people for what they contribute.
- Encourage people to do their best.
- Make people needed. Working together is a lot more fun that way.
- Don’t isolate or exclude anyone. Everybody has something valuable to offer, and nobody likes being left out.

UNIT 7.6: Group Interaction

Unit Objectives

At the end of this unit, participants will be able to:

1. Participate in group discussions in the class.
2. Give speech in the public.
3. Paraphrase the importance of team building and team work.

7.6.1 Group Interaction

Every day we meet with groups of people socially and professionally. How we interact plays a large role in the impressions we create. Interaction that occurs while a group completes a cooperative task describes how the group works.

Everything you do in a group setting makes an impression on everyone in the group. Don't ever think something doesn't matter. Everything matters. Take every opportunity to take part in informal and formal group interactions. Start by making small contributions to discussion, prepare a question to ask or agree with another person's remark. Ask for other persons opinion.

Dos and Don'ts of Group Interaction

Do's	Don't
• Speak pleasantly and politely to the group. • Respect the contribution of every speaker. • Remember that a discussion is not an argument. Learn to disagree politely. • Think about your contribution before you speak. How best can you answer the question/ contribute to the topic? • Try to stick to the discussion topic. Don't introduce irrelevant information. • Be aware of your body language when you are speaking. • Agree with and acknowledge what you find interesting.	• Lose your temper. A discussion is not an argument. • Shout. Use a moderate tone and medium pitch. • Use too many gestures when you speak. Gestures like finger pointing and table thumping can appear aggressive. • Dominate the discussion. Confident speakers should allow quieter students a chance to contribute. • Draw too much on personal experience or anecdote. Although some tutors encourage students to reflect on their own experience, remember not to generalize too much. • Interrupt. Wait for a speaker to finish what they are saying before you speak.

Fig.7.6.1: Dos and Don'ts of Group Interaction

7.6.2 Teamwork

Teamwork is a very important part of working life. They can have a big impact on:

- The profitability of an organisation
- Whether people enjoy their work
- Staff retention rates
- Team and individual performance

Importance of Team Building

Team building activities not only boost morale of the team members, but it can also increase the success rate of the teams. Team building is an important activity as it:

- Facilitates better communication
- Motivates employees
- Promotes creativity
- Develops problem-solving skills
- Breaks the barrier

UNIT 7.7: Time Management

Unit Objectives

At the end of this unit, participants will be able to:

1. Describe the concept of time management.
2. Develop time management skills.
3. Explain effective time planning.

7.7.1 Time Management

Time management is the act of process of planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. It is an activity with the goal to maximize the overall benefit of a set of activities within the boundary condition of a limited amount of time.

Some effective time management

- Delegate tasks.
- Identify time wasters.
- Combine activities – Plan for them.
- Break down big tasks down to the smallest task possible.
- Accomplish them one by one.
- At the end of the day conduct a simple analysis to see which activity took time.

7.7.2 Pareto Analysis

- According to this 80% of the tasks can be completed in 20% of the time. The remaining 20 % of the tasks take 80 % of your time. And the task which should fall in first category should be given a higher priority.
- Time also depends on the method adopted to complete the task. There are always simpler and easier ways to complete the task. If one uses complex ways then it will be time consuming. One should always try to find out alternate ways to complete a task.

Urgent Important Matrix

1. The Urgent and Important Tasks	2. The Non Urgent but Important Tasks
DO NOW	PLAN TO DO THEM
• Emergencies, complaints and crisis issues	• Planning, preparation
• Demands from superiors	• Scheduling
• Planned tasks or project work now due	• Designing, testing
• Meetings with superiors/colleagues	• Thinking, creating, modelling the data

3. The Non Important but Urgent Tasks	4. The Non Important and non-Urgent Tasks
REJECT AND EXPLAIN • Trivial requests from others • Apparent emergencies • Misunderstandings appearing in work • Pointless routines or activities	RESIST AND CEASE • Comfort' activities, computer • Games, net surfing, excessive • Cigarette breaks • Chat, gossip, social • Communications • Reading irrelevant and useless material

Fig.7.7.1: Urgent Important Matrix

This matrix helps you understand:

- What should be done
- What should be planned
- What should be resisted
- What should be rejected

The simplest method of managing time is to create a general to do list. Prioritize the task list:

- A daily list of things to do, numbered in the order of their priority
- Start with the most unpleasant and difficult task first latter will completed easily and quickly.
- Map out everything while making a task list
- Learn to say "No" to unimportant things
- Strikeout the things completed so that you are familiar what have been completed and what needs to be completed.

Prioritize the above mentioned activities in the following heads.

Important Tasks	Unimportant Tasks	Urgent Tasks	Not Urgent Tasks

UNIT 7.8: Resume Preparation

Unit Objectives

At the end of this unit, participants will be able to:

1. Explain the importance of resume.
2. Discuss basic steps for the preparation of a resume.

7.8.1 Introduction

A resume is a self-advertisement that, when done properly shows how your skills, experience and achievements match the requirement of the job you want. The resume is a tool with one specific purpose to win an interview. It convinces the employer that you have what it takes to be a successful in the new career or position.

It also establishes you as a professional person with high standards and excellent writing skills based on the fact your resume is written well. It also helps you clarify your direction, qualifications and strengths, boost your confidence or to start the process of committing to a job or a career change.

One must know about a resume that:

- Your resume is to get you an interview not a job
- Your resume will be screened by an employer for just 15-20 seconds. That's all the time your resume has to make an impact.

There are different sections on the resume in the same order as mentioned under:

Section	What is the employer looking for
Header	Your identity and to contact you
Objective	To check if their requirement and your objective match
Education	To check if you have the basic qualification for the job/ internship you are applying for
Practical Experience/Projects	To see if you have done anything that reflects your potential capability. Also to see how different you are from your peers.
Skills	How equipped you are in terms of your personality traits as well as occupational skills
Interests	Professional aspects apart, how meaningful is your life?
Other	Is there anything else significant and relevant you want to showcase, that will add value to your resume.

Fig.7.8.1: Different sections on the resume

7.8.2 Points to Remember

- Make sure that the length of your resume does not exceed 2 pages.
- Do a thorough recheck and make sure there are absolutely no errors in your resume. No grammatical errors, no spelling mistakes, no punctuation errors.
- Run through your resume time and again for to make improvements and wording sentences better.
- Choose a professional font in a size 11 or 12. You can use multiple fonts for different parts of resume, but try to limit it maximum of two fonts. Instead changing between fonts, try making specific sections bold or italicized instead.
- The font size of your header and the introduction to a section may be a size 14 or 16.
- Your text should always be printed in solid black ink. Make sure to deactivate any hyperlinks so that they don't print in blue or other contrasting colour.
- Your page should have one inch margin all the way around with 1.5 or 2 point line spacing. The body of your resume should align left and your header should be centred at the top of the page.

UNIT 7.9: Interview Preparation

Unit Objectives

At the end of this unit, participants will be able to:

1. Explain the procedure of an interview.
2. Prepare for interview.

7.9.1 Interview

An interview is a conversation between two or more people (the interviewer(s) and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee. An interview is the first and last hurdle you need to cross in order to get a job.

Common Types of Interview

1. **Traditional HR Interview:** Most interviews are face to face. The most traditional is a one-on-one conversation with the HR Executive where the candidate's focus should be on the person asking question. You are advised to maintain good eye contact, listen keenly and answer promptly.
2. **Panel Interview:** In this situation, there is more than one interviewer. A panel ranging from two to ten members may conduct this part of the selection process. This is an ideal chance for you to display group management and group presentation skills.
3. **Technical interview:** The objective of this interview is to basically evaluate technical knowledge. Majority of the questions will be based on the skills sets mentioned in the candidate's resume.
4. **Telephone Interview:** Telephone interviews may also be used as a preliminary interview for candidates who live far away from the job site.

Before going for an interview, it is important to have clarity of the role you are applying for. It's also important that you know where you are applying and who will you be talking to. Your answers should tell the employer that you are the match they are looking for.

This requires you to do a small research on the following fields:

- Company & Field
- Job Description
- Yourself (Skills, Values & Interests)
- Resume (Experience)

It is important that you dress professionally. It is a proven fact that the way we dress makes a huge difference in the way we are perceived. 90% of the way you communicate with other people is through body language (gestures, expressions, etc.) and the first Impression we make. It is very simple to make a great first impression.

For a good first impression it is important those we:

- Smell good
- Have a professional appearance

- Pay attention to your grooming
- Make eye contact
- Know what and how you speak
- Our overall personality contributes to our complete perception.

How to dress for Interview

Men	Women
Long-sleeved buttoned shirt (clean and pressed)	Conservative pump, no stilettos
Dark shoes (cleaned and polished) and dark socks	Jewellery -One set of earrings (preferably knobs)
Get a haircut (short hair is always best)	No bangles
No Jewellery (chains, earrings, piercing)	Minimal use of makeup
No beards or Tattoos	

Fig.7.9.1: Dress for Interview

7.9.2 The Do's and Don'ts in an Interview

Some of you might have faced an interview and some of you might not have. However, by now, you definitely have a better understanding what are the accepted standards of a professional behaviour. Read the sentences given and mark them as do's or don'ts, in relation to an interview:

Sentence	Do's	Don'ts
Be yourself		
Burp while talking!!!		
Just out from a 'powder factory' (worn too much make-up)		
Reach just about the right time for the interview		
Just barge in the cabin/ office		
Forget to greet the receptionist/ don't respond		
Think before you speak		
Do your homework- Visit the company website		
Take time to think (TTTT)		
Wear bright colour clothes on the D-day		
Emphasis on your strengths		
Argue/ Debate with the interviewer		
Chew gum during the interview.		
Review your educational and work experiences		
See your documents flying out of the file (Being clumsy)		
Thank the interviewer		
Have the 'they need me' attitude		

Maintain eye contact and good body language		
Only give monosyllabic answers(depends on the kind of questions asked…in-between)		
Carry a copy of your resume		

Fig.7.9.2: Do's and Don'ts in an Interview

7.9.3 During the Interview

- Be confident, not arrogant
- Sell yourself - Keep your energy up
- Maintain your posture
- Be positive, don't complain
- Know your resume and accomplishments.

It isn't sufficient to have ideas. They have to be expressed effectively in the interview. The parameters that the candidates are assessed on during the interview are very simple. These are the parameters that this training program has prepared you for.

8. Employability Skills

Unit 8.1 - Employability Skills – 30 Hours

Key Learning Outcomes

At the end of this module, participants will be able to:

1. Explain employability skills.
2. Paraphrase constitutional values for citizen.
3. Become a professional in the 21st century.
4. Demonstrate the basics English skills.
5. Demonstrate the communication skills.
6. Recognise the essential digital skills.
7. Identify the diversity and inclusion.
8. Interpret financial and legal literacy.
9. Illustrate the career development and goal-setting.
10. Understand the customer service.
11. Get ready for apprenticeships and jobs.

UNIT 8.1: Employability Skills – 30 Hours

Unit Objectives

At the end of this unit, participants will be able to:

1. Explain employability skills.
2. Paraphrase constitutional values for citizen.
3. Become a professional in the 21st century.
4. Demonstrate the basics English skills.
5. Demonstrate the communication skills.
6. Recognise the essential digital skills.
7. Identify the diversity and inclusion.
8. Interpret financial and legal literacy.
9. Illustrate the career development and goal-setting.
10. Understand the customer service.
11. Get ready for apprenticeships and jobs.

8.1.1 Employability Skills

To read the e-book on Employability Skills scan the QR Code below.

Employability Skills

9. Annexure-Resources

Module No.	Unit No.	Name of Subject	URL	QR Code
1. Introduction and Orientation	Unit 1.1 - Introduction to Apparel Sector	Apparel industry in India	https://youtu.be/tN5oLGSjepQ	
1. Introduction and Orientation	Unit 1.2 - Role and Responsibilities of Washing Machine Operator	Garments Washing Machine in Apparel Industry	https://youtu.be/vYBG4bJtLKI	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.1 - Garment Washing Methods, Trims and Accessories	Chemicals used in Washing	https://youtu.be/xWUs36DQzrg	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Different Types of Washing Machine	https://youtu.be/-0rjLVy20yk	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Garments Washing Process	https://youtu.be/_S1_wNz-KNE	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Garments Washing Factory	https://youtu.be/LZbGG2NIKQY	

2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Types of fabrics	https://youtu.be/Vi6RPMbau98	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Parts of a pant	https://youtu.be/6Cz04xfnZnk	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Parts of a shirt	https://youtu.be/cAyiRPm4AZo	
2. Plan and Prepare for Process of Washing as Per Job Card	Unit 2.4 - Understanding the Parameters Which Affect Washing	Different Types of Pocket	https://youtu.be/T_NFN7O6z5M	
3. Carrying Out the Washing Process	Unit 3.1 - Different Washing Techniques	Different Washing Techniques	https://youtu.be/BCFrp6Js4Hg	
3. Carrying Out the Washing Process	Unit 3.1 - Different Washing Techniques	Garment wash care labels	https://youtu.be/wSf_AcUyv0M	
4. Maintain Workarea, Tools and Machines	Unit 4.1 - Maintain Workarea, Tools and Machines	Housekeeping At Workplace	https://youtu.be/g-TO1ufPdrE	

5. Maintain Health, Safety and Security in the Washing Department & Gender Sensitivity Requirements	Maintain Health, Safety and Security at Work Place	Health related threats in apparel industry and control on them	https://youtu.be/POlQ27GQZp0	
5. Maintain Health, Safety and Security in the Washing Department & Gender Sensitivity Requirements	First Aid & CPR	First aid	https://youtu.be/DQ7JPNgU8Wg	

https://youtu.be/vYBG4bJtLKI

Scan QR code to access e-book

Apparel Made-ups & Home Furnishing Sector Skill Council

Flat No. A-312 to A-323, 3rd Floor, Somdatt Chamber-1,

Bhikaji Cama Place, Africa Avenue, New Delhi-110066

E-mail: info@sscamh.com

Website: www.sscamh.com

Price: `