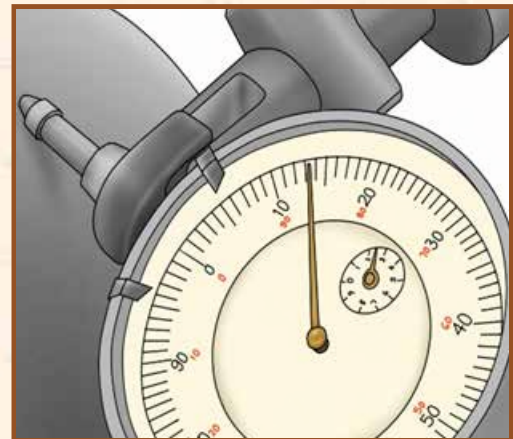




# Facilitator Guide



Sector  
**Iron & Steel**

Sub-Sector  
**Steel, Sponge Iron, Ferro Alloys**

Occupation  
**Electronics and Instrumentation Maintenance**

Reference ID: **ISC/Q1102, Version 1.0**  
NSQF Level: **3**

# Fitter – Instrumentation





**Shri Narendra Modi**  
Prime Minister of India

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



## Certificate

### COMPLIANCE TO QUALIFICATION PACK – NATIONAL OCCUPATIONAL STANDARDS

is hereby issued by the

**Indian Iron & Steel Sector Skill Council**

for

**SKILLING CONTENT : PARTICIPANT HANDBOOK**

Complying to National Occupational Standards of

Job Role/ Qualification Pack: ' Fitter - Instrumentation ' OP No. ' ISC/Q1102 NSQF Level 3 '

Date of Issuance: April 9<sup>th</sup>, 2016

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\*Valid up to' date mentioned above (whichever is earlier)

Authorised Signatory

Indian Iron & Steel Sector Skill Council



## Acknowledgements



## About this book

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

This job is all about installing, dismantling, removing, replacing a range of components down to sub-assembly level right from pick-up unit / point of measurement and linking either directly to the instrument or to the instrument panel. This also involves making suitable slot on panel and fixing instrument and its associated parts under supervision of Technician Instrumentation.

The candidate should possess basic communication, numerical and measurement abilities. Openness to learning, ability to plan and organize own work and identify and solve problems in the course of working.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS. The symbols used in this book are described below.

## Symbols Used



Steps



Time



Tips



Notes



Objectives



Do



Ask



Explain



Elaborate



Field Visit



Practical



Lab



Demonstrat



Exercise



Team Activity



Facilitation Notes



Learning Outcomes



Say



Resources



Activity



Summary



Role Play



Example

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**Skill India**  
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सत्यमेव जयते  
GOVERNMENT OF INDIA  
MINISTRY OF SKILL DEVELOPMENT  
& ENTREPRENEURSHIP



**N.S.D.C**  
National  
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Transforming the skill landscape



# 1. Introduction

Unit 1.1 - Understanding of Iron & steel industry

Unit 1.2 - Understanding various types of Iron & Steel Industry

Unit 1.3 - Creation of products in Iron & Steel industry



## Key Learning Outcomes

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

1. Discuss about Iron & Steel industry
2. Discuss about development activities in Iron & Steel industry
3. Discuss about employment opportunities in India
4. Know about industry structure
5. Know about Iron & Steel plants in India
6. Know about steel making procedure
7. Know about processes involve in steel making

## UNIT 1.1: Understanding of Iron & Steel Industry

### Unit Objectives

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

1. Discuss about Iron & Steel industry
2. Discuss about development activities in the industry
3. Know about opportunities in Iron & Steel Industry in India

### Resources to be Used

- Invigilator can use the available objects such as a marker, duster, pen, notebook etc.

### Do

- Take a parcel, mention some details such as student name, hobbies, likes, dislikes etc.
- Make the students stand in a circle, close enough to the person each side of them that they can
- Pass the parcel quickly.
- Say 'Stop' when the students least expect it. The person who has the parcel at that time should get out from the class.
- Those who get out should introduce themselves by providing the details mentioned in the parcel.
- The winner of the game should stand and introduce himself/herself at the end of the game.
- At last, say thank the students for their participation.

### Say

- India comes under the list of world's largest crude steel producer countries.
- Crude steel capacity of India reached 109.85 Million tonnes (MT), with a growth of 7.4 per cent.
- Requirement of large amount of iron ore and coal for production of steel.
- According to the data, the Indian metallurgical industries attracted Foreign Direct Investments (FDI) of around US\$ 8.7 billion.
- Indian government is aiming to increase steel production to 300 MT by 2025 in the country.

- The Ministry of Steel is facilitating setting up of an industry driven Steel Research and Technology Mission of India (SRTMI) in association with the public and private sector steel companies to spearhead research and development activities in the iron and steel industry at an initial corpus of Rs 200 crore.
- The total employment in the steel industry is more than 2 million which includes both direct and indirect employment.

## Notes for Facilitation



- You could ask the students who get out during the game to be the music keepers. They can start and stop the music as the game progresses.
- Encourage shy students to provide information about themselves by prompting them with questions such as 'what do you enjoy doing the most', 'what is your favorite movie or book' etc.
- Brief about iron and steel industry.
- What all conditions for the growth in iron and steel industry.
- Explain the government initiatives in this sector.
- You could ask from the students about employment opportunities in the industry.

## UNIT 1.2: Understanding various types of Iron & Steel Industry

### Unit Objectives

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

1. Discuss about Iron & Steel industry structure
2. Know about Iron & Steel plants in India

### Say

- The Iron and Steel Industry in India is separated into two divisions:
  - o Integrated producers, and
  - o Secondary producers
- TISCO is the oldest iron and steel plant of India.
- There are more than 50 Iron and Steel industries in India.
- There capacity varying from ten thousand to five lakh tonnes, these are known as mini steel plants.

### Notes for Facilitation

- You could ask the students about the expectations from the course.
- Invite students to participate.
- List the major Iron and Steel producing companies in India.
- Give the students a brief overview of what all will be covered in the program.
- You could ask the location of different industries in India.
- You could ask the iron and steel industries name in India.

## UNIT 1.3: Creation of products in Iron & Steel Industry

### Unit Objectives

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

1. Discuss about steel making process
2. Know about different processes involved in steel making

### Say

- Production of steel involves many process steps which can be carried out in different combinations of energy supply, product mix, available raw materials and investment.
- There are many processes involved in steel making like coke making, blast furnace, smelting, reduction etc.
- Coke is produced by heating coking coals up to 1000 to 1200 °C for several hours in coke ovens to drive off volatile compounds and moisture.
- In Basic Oxygen Furnace (BOF)-Blast furnace (BF) route: pig iron is produced by using iron ore (70-100%) and coke in a blast furnace, and then turned into steel in a basic oxygen furnace.
- Smelting reduction unit combine processes for the gasification of coal with the melted iron ore.
- Smelting reduction unit has lower energy intensity than blast furnace

### Notes for Facilitation

- You could ask the students the three main steel making procedures.
- Give students some time to think about how the iron and steel industry has changed in the last five years.
- Set the context and describe the industry trends in iron and steel.
- You could ask the entire process involve in steel making.

### Field Visit

- You could visit the Iron and steel producing company and demonstrate the procedure of steel making



## 2. Occupational, Health and safety (OHAS)

Unit 2.1 - Learn Occupational health & Safety

Unit 2.2 - What is hazard

Unit 2.3 - Safe working practices

Unit 2.4 - Working at Heights and confined spaces

Unit 2.5 – Fire prevention

Unit 2.6 - Emergencies, rescue and first aid procedures



## Key Learning Outcomes

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

1. Discuss about safety requirements, procedures, and resources for different areas
2. Discuss about safe work practices
3. Know about hazards, types of hazards and how to control hazards
4. Know about PPE requirements
5. Know about safe working practices at heights
6. Know about safe working practices at confined spaces
7. Discuss about protection from fire hazards
8. Know about fire extinguisher and how to use it.

## UNIT 2.1: Learn Occupational Health & Safety

### Unit Objectives

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

1. Discuss about health and safety requirements in industry
2. Know about essential elements for safety
3. Know about good safety work practices

### Resources to be Used

- Available objects such as a duster, pen, notebook etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts. At last, say thank the students for their participation.

### Say

- The health and safety of workers is a very important factor in this industry because it affects both social and economic factors of an organization.
- An iceberg of incidents is showing the nature of various types of accidents. They are unsafe actions, incidents, minor injuries, lost time injuries, serious accidents and fatalities.
- Three features are vital for advancement of safety in a workshop.
- Conducting regular safety audits to identify unsafe practices and areas and how to take corrective actions to overcome the issues. Safety audits can help in timely recognition of hazards and risks.

### Elaborate

- Three features are vital for advancement of safety in a workshop:
  - o Situation of environment of work place in terms of plant access, housekeeping, safety and safe place of work etc..
  - o Workers training and ability which assists them to recognize and apply safe systems of work.

- o The development of motivational and behavioral influences of employees. This includes identifying unsafe behavior and attitudes by using more direct strategies and to motivate employees.

## Ask



- Ask various type of accident.
- Ask three aspects are important for progress of safety in a steel plant.
- Ask the essential elements necessary for safety
- Ask about the good safety practices

## Notes for Facilitation



- You could ask what the students think about safety in steel plant.
- You could ask the benefits to adopt such technique.

## UNIT 2.2: What Is Hazard

### Unit Objectives

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

1. Discuss about hazards and different types of hazards
2. Know about, how to identify and control hazards
3. Know about safe working practices

### Resources to be Used

- Available objects such as a duster, pen, notebook, PPE, heavy weight etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- A hazard is something that has the potential to cause injury, disease or death in a workplace.
- Aspects for the development of a safe workplace environment are development policies, consultative process, hazard identification and control.
- Hazards are of following types: Physical, Mechanical, chemical and Electrical etc.
- Mineral oil is typically used for operation purposes for bulk density control and dust suppression.
- The emissions contain numerous polycyclic aromatic hydrocarbons (PAHs), some of which are carcinogenic.
- Ensure the control measures

## Elaborate



There are a number of aspects to the development of a safe workplace environment.

- The development of policies
- The development of consultative processes
- Hazard identification, assessment and control.

A steel plant is full of hazards. For the sake of workers safety in plant, these hazards have to be tackled. Major hazards occur in plant are:

- Road hazards- road hazards are very high because of movement of heavy and heterogeneous traffic on plant. This hazard occurs mainly during the shift change timings of workers.
- Coke oven and sinter plant – Here hazards occur due to dust, heat, chemicals, smoke, fire and explosion etc.
- Blast furnace and steel melting shop – The main hazards occur here due to gas poisoning, heat, slag, dust, moving equipments and vehicles, fire and working at heights.
- Rolling mills – In rolling mills, the hazards occur are moving equipment, heat, suspended loads, splinters and slippery floors.
- Power plant – The main hazards are heat, working at height, noise, vibrations and gas and steam lines etc.
- Material handling – The main hazards occur due to improper material handling are posture, improper signaling, moving equipment, loads and suspended overhead loads etc.
- Other major hazards which are common to most of the places are working in confined space, working with improper tools, poor illumination, poor ventilation, electrical hazards, loco movements, unmanned crossings, unpreparedness for emergencies, unsafe scaffoldings, over confidence and working without safety appliances, personal protective equipments (PPEs), written clearances, and shutdown clearances etc.

## Ask



- You can ask the different types of hazard
- You can pick the students and ask the hazard warning sign.
- You can ask the different ideas to control the hazard.
- You could ask the common causes of hazard.

## Notes for Facilitation

- You could ask the hazard during workplace.
- You could show all the hazard warning sign and their differences.
- You could ask the various techniques to avoid and control from hazards.
- Give students some time to think about how the hazard affects physical and mentally to our body.

## Activity

- Conduct a skill practice activity.
- Ask the students to assemble together.
- You could show the various Hazard signs and ask the identification from the students one by one.

## UNIT 2.3: Safe Working Practices

### Unit Objectives

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

1. Discuss about safe working practices
2. Know about material safe handling
3. Know about personal protective equipments

### Resources to be Used

- Available objects such as a duster, pen, notebook, PPE, heavy weight etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- There are safe practices need to be consider for avoiding general shop hazards
- There are safe practices need to be consider for avoiding machine hazards
- Every worker has to lift and move heavy weight during the job whenever required.
- Extreme care should be taken while lifting or moving the job so that no damage occurs to the job or plant and also to prevent accidents at work place.

## Elaborate

Personal protective equipment provides us the last level for controlling hazards. Before using of personal protective equipment, the working requirements of the equipment should be checked to make sure it fulfills the same, verify the required standards, make sure it fits the body shape of the user, be user-friendly and is under regular maintenance and can be switched if required.

### Personal Protective Equipment (PPE)

- **Safety helmet:** Safety helmets guard the head from injuries caused by falling objects.
- **Earmuffs, earplugs:** Earmuffs and earplugs protect the ears from injuries by loud noises.
- **Safety belt:** Safety harnesses guard from falling from heights.
- **Goggles:** Goggles protect the eyes from injuries caused by strong light or flying objects.
- **Safety boots:** Safety boots guard the feet from puncture wounds, injuries and slipping.
- **Respirator:** Respirators guard the respiratory system from the attack of poisonous gases, mist, fumes and dust.



Fig 2.3.1: PPE

## Ask



- You can pick the students and ask the safe practices for avoiding general shop hazards.
- You can ask the various types of personal protective equipment.

## Notes for Facilitation



- You could ask the safety checklist before operating a machine.
- You could show the protective equipment and ask the causes.
- You could ask the causes of wrong handling

## Do



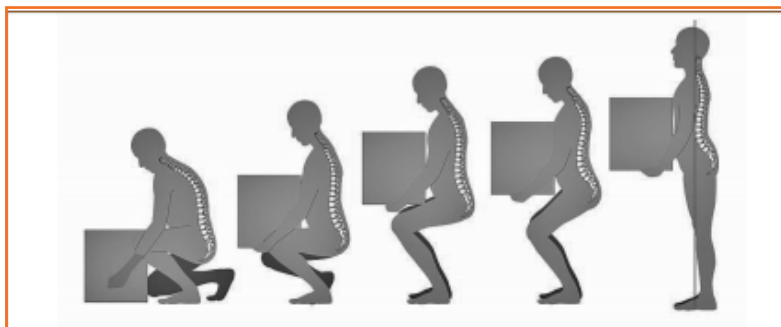
- Show them the PPE
- Demonstrate the use and requirement of PPE
- Demonstrate the safe material handling practices

## Demonstrate



Points to be taken care of while lifting / moving material

- Lift the materials in correct posture.
- Do not try to lift too heavy materials alone.
- Ensure the grip is right so that the job doesn't slip from hand and fall
- Put down the job at the destined place properly.
- Do not throw the job on ground.
- Avoid double handling.
- Take rest breaks during heavy or repetitive work.



**Fig 2.3.2:** Safe material lifting

## Activity

- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
PPE and Safe material handling	2 hours	PPE
		Heavy weight

## Do

- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## Lab

- You could show the various personal protective equipments (PPE) to the students in the lab

## UNIT 2.4: Working at heights and confined spaces

### Unit Objectives

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

1. Discuss about risks of working at heights
2. Know about safety precautions while working at heights
3. Discuss about risks of working at confined spaces
4. Know about safety precautions while working at confined spaces

### Resources to be Used

- Available objects such as a duster, pen, notebook, ladder, respiratory equipments etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Notes for Facilitation

- You could ask the students about the understanding of safe working practices at heights and confined spaces.
- Invite students to participate. List the responses from students on the whiteboard.
- Give the students a brief overview of what all will be covered in the program.

## 2.4.1: Safe working at heights

### Say



- Falls from height are responsible for many serious and fatal injuries every year.
- The Health and Safety Executive recommends a five-step approach to risk assessment, and the risk of slips, trips and falls should also be considered.

### Elaborate



The main hazards associated with working at height are people falling and objects falling onto people below. These may occur as a result of inadequate edge protection, or from objects in storage being poorly secured.

Safety equipments can use while working at heights:

- Mobile elevated platforms
- Ladders
- Step-ladders
- Scaffolder
- Harnessing belts

### Do



- Show the risk assessment procedure
  1. Look for hazards associated with falls from height around the workplace. Where are people required to work at height? Do they carry out work from ladders, platforms, scaffolds, or unprotected or fragile roofs?
  2. Decide who might be harmed and how. Who comes into the workplace? Are they at risk? Are some groups more at risk than others?
  3. Consider the risks. Are there already measures in place to deal with the risks? Look at areas with unguarded openings or without guardrails and covers. Are regular inspections carried out?
  4. Record your findings if you have five or more employees.
  5. Regularly review the assessment. If any significant changes take place, make sure that precautions are still adequate to deal with the risks.
- Demonstrate the safe use of ladders

## Demonstrate

Steps of how to work safely on ladder:

1. Climb only the front of the ladder, never the back.
2. Don't climb higher than the tread that's third from the top (there should be two steps above you, including the top); never sit on the top.
3. Keep your hips centered between the vertical side rails; don't overreach to either side.
4. Never stand on the spreaders or paint shelf.
5. Don't leave ladders unattended, especially around children.
6. Allow only one person on the ladder at a time.
7. Never lean a closed stepladder against a wall and climb it; it can slide out from under you.

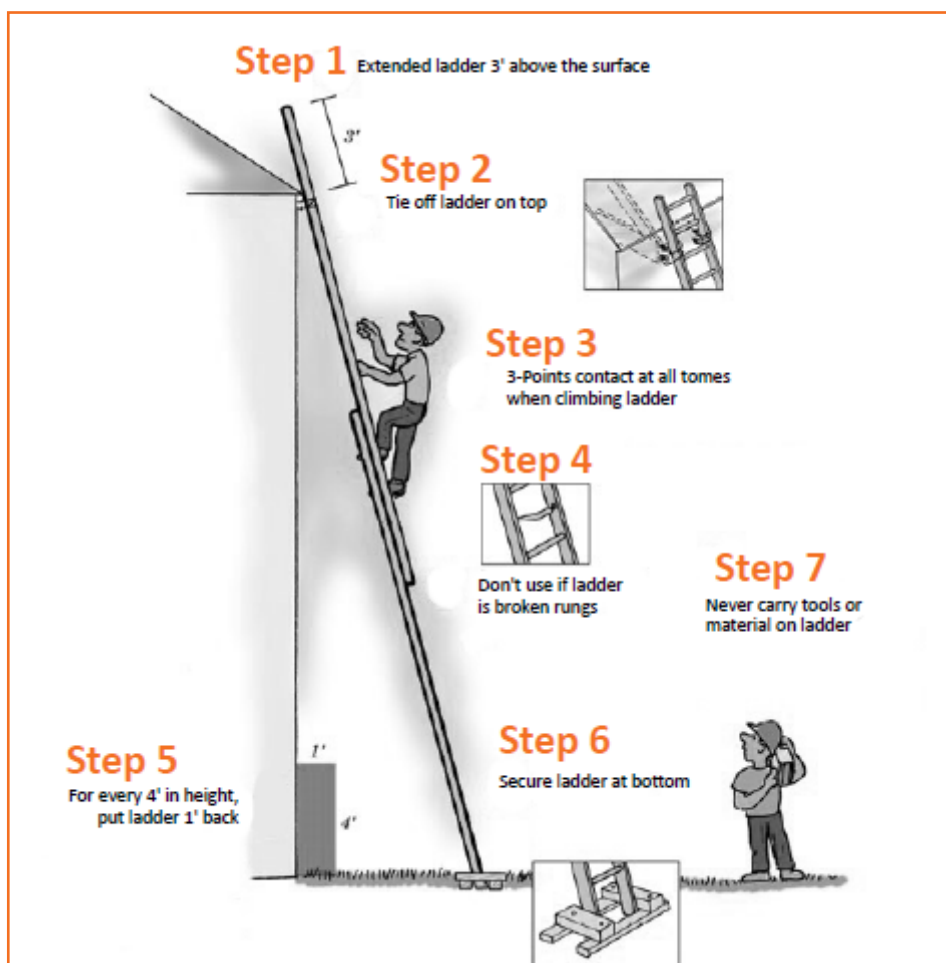


Fig 2.4.1: Safe use of ladder

## Do's

- Work on ground level, as much as possible.
- Make sure equipment is sufficiently stable, appropriate and strong for the job.

- When working on or near delicate areas, take safeguards
- Always be prepared for protection from falling objects
- make strategy for evacuation in case of emergency and rescue procedures

### Don't

- Overload ladders
- Overreach on ladders or stepladders
- Fix the ladder on weak and uneven surfaces
- Use stepladders or ladders for tough or heavy tasks.

### Ask

- You could ask the safe working procedure while working at height.

## 2.4.2: Safe working at confined spaces

### Say

- Spaces which are enclosed from all around and risk of death or serious injury from dangerous conditions and hazardous substances is very high, are known as confined spaces.
- If you cannot avoid entry into a confined space, make sure you have a safe system for working inside the space.

### Elaborate

Dangers can arise in confined spaces because of the following issues.

- A lack of oxygen. This can occur:
  - Spaces where reaction between some soils type and oxygen happens in the atmosphere;
  - Reaction of groundwater with limestone produces carbon dioxide;
  - Rust formation inside the vessels and steel tanks.
- Poisonous gas, fume:
  - Formation of poisonous gases in sewers and manholes;
  - Leakage of gases and fumes into trenches and pits in a poisonous area.
  - enter tanks or vessels from connecting pipes;
- Liquids and solids which can suddenly fill the space, or release gases into it, when disturbed. Free-flowing solids such as grain can also partially solidify or 'bridge' in silos, causing blockages which can collapse unexpectedly.
- Fire and explosions due to excess oxygen and flammable vapours.
- Filling of liquids and solids inside the space, when disturbed.
- Hot temperature conditions leading to increase in body temperature dangerously.
- Residues of fumes and vapour left in tanks, vessels etc.
- High concentrations of dust e.g. in flour silos.

#### Safe systems of work at confined spaces

If you have to work in a confined space, carry safety systems and equipments for working inside the space. The following checklist is important while working in a confined space.

- **Isolation:** Isolate the electrical and mechanical system of equipments need to be operating in space. In any cases, ensure that isolation done is effective.

- **Cleaning:** Make sure that there is no formation of fumes from residues during the work.
- **Size of entrance:** Entrance size is big enough to permit workers to enter in the space with all the necessary equipment required, and provide ready exit during an emergency.
- **Provision of ventilation:** Ensure that there is proper mechanical ventilation for an adequate supply of fresh air in the confined space. It is very important where portable gas cylinders and diesel fuelled equipment are used.
- **Isolation:** Mechanical and electrical isolation of equipment is essential if it could otherwise operate, or be operated, inadvertently. If gas, fume or vapour could enter the confined space, you need to isolate the pipework. In all cases, a check should be made to ensure isolation is effective.
- **Cleaning:** before entry this may be necessary to ensure fumes do not develop from residues etc while the work is done.
- **Check the size of the entrance:** Is it big enough to allow workers wearing all the necessary equipment to climb in and out easily, and provide ready access and exit in an emergency? For example, the size of the opening may mean choosing air-line breathing apparatus in place of self-contained equipment which is more bulky and therefore likely to restrict ready passage.
- **Provision of ventilation:** You may be able to increase the number of openings and therefore improve ventilation. Mechanical ventilation may be needed to make sure there is an adequate supply of fresh air. This is essential where portable gas cylinders and diesel fuelled equipment are used inside the space because of the dangers from build-up of engine exhaust.
- **Provision of special tools and lighting:** Use non-sparking tools and protected lighting systems to avoid flammable and explosive atmospheres. In confined space like inside metal tanks, appropriate precautions are required for safety from electric shock.
- **Provision of breathing apparatus:** Availability of breathing apparatus, if the air inside the space is not adequate and suitable for breathing because of poisonous fumes, gases or vapours in the space and lack of oxygen.
- **Preparation of emergency arrangements:** Proper emergency arrangements which cover the necessary equipments and practice drills.
- **Provision of rescue harnesses:** Availability of safety harnesses at the point outside the confined space.
- **Emergency procedures:** When situations are not favorable, there can be chance of serious and immediate danger. Effective arrangements like alarm systems and rescue operations during an emergency are essential.

## Notes for Facilitation



- You could ask about essential elements to help prepare a safe system of work at confined spaces.
- Show them the safety equipments required while working at confined spaces.

## Ask



- You could ask the confined space at safe working.
- You could ask how the danger can arise in confined space.
- What can occur if there is lack of oxygen?
- You could ask the isolation process.
- You could ask the safe systems of work at confined spaces.

## UNIT 2.5: Fire Prevention

### Unit Objectives

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

1. Discuss about fire hazards and how to control
2. Discuss about fire extinguishers
3. Know about types of fire extinguishers
4. Know about how to use fire extinguishers

### Resources to be Used

- Available objects such as a duster, pen, notebook, fire extinguisher, fire alarm, PPE etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- Fire is defined as a self-sustaining combustion process in which a substance (fuel) combines with oxygen in air to produce immense heat and light.
- Fire hazards pose threats to life and property.
- Fire is categorized into class A, B and C fire.
- A fire extinguisher is a fire protection device used to extinguish or control small fires during fire emergency situations.
- Dry chemical is a powder based. They stops and halts the production of fire supporting by “free-radicals”, accordingly extinguish the fire.

### Elaborate

Different fuels create different fires and require different types of fire extinguishing agents.



#### Class A

Class A fires are fires in ordinary combustibles such as wood, paper, cloth, trash, and Plastics.



#### Class B

Class B fires are fires in flammable liquids such as gasoline, petroleum oil and paint. Class B fires also include flammable gases such as propane and butane. Class B fires do not include fires involving cooking oils and grease.



#### Class C

Class C fires are fires involving energized electrical equipment such as motors, transformers, and appliances. Remove the power and the Class C fire becomes one of the other classes of fire.



#### Class D

Class D fires are fires in combustible metals such as potassium, sodium, aluminum and magnesium.

#### Common fire extinguishers are:

- **Dry chemical:** These types of fire extinguisher are in powder form. They stop and halt the production of fire supporting by “free-radicals”, accordingly extinguish the fire.
- **Foams:** This type is applied over aspirated or non-aspirated fuels. It forms a seal or foamy blanket over the fuel and stops oxygen to reach near the fuel. Unlike powder type, foam type fire extinguisher is used to extinguish fires without flashback.



*Fig 2.5.1: Fire extinguisher*

- **Water:** It cools burning material by absorbing heat through the use of air pressurized water. It is successful to extinguish class A fires. Unlike dry chemicals and foams based fire extinguisher it is harmless, inexpensive and easy to clean.
- **Clean agents and carbon dioxide:** These types of extinguisher displace oxygen, control chemical chain reaction and remove heat from fire zone. This extinguisher does not leave any remains after release which is ideal for electronics items and sensitive documents.

## Do

- Tell them about the fire fighting equipments.
- Show them the equipments and explain their use.
- Demonstrate them the use of fire extinguisher.
- Explain them about different types of fire extinguishers.

## Demonstrate

### Steps for using the fire extinguisher

- Step 1: Pull the pin** from the top of the extinguisher for releasing locking mechanism which discharges the extinguisher.
- Step 2: Aim the extinguisher towards** the base of the fire not the flame.
- Step 3: Squeeze the lever slowly.** Deliver the extinguishing agent in the extinguisher. When the lever of extinguisher is released, the discharge of extinguishing agent stops.
- Step 4: Sweep from side to side.** Move the fire extinguisher to and fro by sweeping motion until the fire is under control. Operate the extinguisher from a safe distance. Move towards the fire when it starts to reduce.



Fig 2.5.2: Using fire extinguisher

## Notes for Facilitation

- You could ask the common fire extinguisher.
- You could ask the type of fire extinguisher and their role?
- You could ask what all information contains fire drill report.

## Tips - During fire outbreak

1. On noticing a fire, immediately start shouting “fire” at top of your voice. Do not wait for the automatic fire alarms to start ringing.
2. Take a fire extinguisher
3. Use extinguisher as per fire type: - Water and co2 fire extinguishers for general fires - Foam type extinguishers for oil fires - Co2 fire extinguisher only for electrical fires.
4. Switch off all main switches during an electrical fire.
5. Do not try to switch off electrical equipment. Cut the power from the main source.
6. do not panic and alert the building fire department
7. Call the fire brigade immediately.
8. Ensure that the water sprinklers and other fire-fighting equipment have started operating.
9. First priority should be to save people. Help others to safely get out of the floor
10. Alert the nearest hospital to prepare to treat serious burn injuries.

## Activity

- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Use of fire extinguisher	2 hours	Fire extinguisher
		PPE

**Do** 

- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

**Field Visit** 

- You could visit any of the industry and show the firefighting equipment. With the help of field visit you could show the where we need to fit various firefighting equipment and its role.

## UNIT 2.6: Emergencies, rescue and first aid procedures

### Unit Objectives

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

1. Discuss about basic first aid techniques during electric shock, burns and choking
2. Know about CPR process
3. Know about bandaging process

### Say

- If you think someone is suffering from electric shock, approach with extreme caution.

### Demonstrate

You can make a group of few students to do demonstrate:

#### Steps - How to free a person from electrocution

If find someone is suffering from electric shock, approach with extreme caution and following first aid steps.

**Step 1:** **Firstly take** the suffered person away from the electricity source as fast as possible. Turning off the electric supply of machine is the best method for doing this.

**Step 2:** If this seems impossible, remove the person from electricity source by using a piece of wood or insulating material.

**Step 3:** **Don't touch the victim getting the electric shock** because you could also get shock too.

**Step 4:** **After successful executing the victim from the electricity source**, call the ambulance, if victim is unconscious. Give first-aid to victim till the time ambulance is coming.

**Step 5:** **If victim is conscious** and looking well, monitor its condition, as the results of shock must not be clear immediately.



**Fig 2.6.1:** Freeing a person from electrocution

## Bleeding and Wounds

**Step 1:** Cover the wound by a clean cloth and gloved hand; then apply firm and steady pressure on wound for 5 mins at least.

**Step 2:** Lift up the injured leg or arm above the victim's heart level.

**Step 3:** Secure the wound by a bandage when bleeding stops. Ensure that bandage is not fixed too tightly—it may stop blood circulation.

**Step 4:** Check the victim for shock.

## Burns

### Chemical or Compressed Gas Burns

**Step 1:** Use a drench hose and emergency shower for at least 15 mins to rinse away all residues of chemicals.

**Step 2:** Cover the burn by a clean and dry cloth or special dressing for burns.

### Heat or Electrical Burns

**Step 1:** Cool burning of skin by water.

**Step 2:** Place the burned area under cold running water if the skin is not broken and gently compress the wound by hand. Bandage the wound by a dry and clean cloth.

**Step 3:** If blister appear, don't try to break it.

**Step 4:** Do not apply ointments or creams.

**Step 5:** If skin is cracked, or if injuries are severe:

- Do not clean the wound or remove embedded clothing.
- Cover the injury insecurely with a clean, dry cloth.
- Expect shock and treat accordingly.

## Choking

**Step 1:** Wrap your arms around the stomach and stand directly behind the victim.

**Step 2:** Just above the navel and well below the ribs, make a fist by a hand. Place that fist with the thumb and forefinger side toward you.

**Step 3:** Hold the fist by other hand and pull it rapidly towards you by a slightly upward and inward thrust. If required, repeat it.

## Basic techniques of banding

The key points when applying a bandage are:

- Step 1:** Make sure the person is comfortable.
- Step 2:** Never lean across their body and ensure that you are working from the side of the injury.
- Step 3:** First clean the wound and apply the antibacterial cream over it.
- Step 4:** When the bandage is on always remember keep the injured part of the body supported in the position it will be in.
- Step 5:** Always use right size of bandage.
- Step 6:** To check the passage easily, don't cover fingers or toes when bandaging a limb.
- Step 7:** Never wrap the bandage tight, and secure the end by folding it over and binding a knot in the end. Safety pin, adhesive tape, or a bandage clip can be used.

## Artificial respiration and the CPR Process

- Step 1:** Check the Victim - tap and shout to get response.
- Step 2:** Circulation - pump the chest 30 times.
- Step 3:** At the center of the chest put the heel of one hand and your other hand on top of it. At a rate of 100 per minute (16 compressions in 10 seconds), press chest down 2 inches.
- Step 4:** Tilt head back, lift chin up to open airway - Airway.
- Step 5:** Breathing - Tweak nose closed, take a normal breath, cover patient mouth with yours and blow out your breath until you see the chest rise. Make one breath per 1 second. Again open airway again if chest doesn't rise.



Fig 2.6.2: CPR Process

- Step 6:** Repeat procedure until help arrives or the victim begins breathing.

## Correct method to move injured people during an emergency

- Step 1:** Stand on either side of the conscious victim. Grab the victim's wrist with the hand closest to the victim's feet on your side.
- Step 2:** Use your other hand to grasp the clothing on the shoulder nearest to you and pull the victim's arms to help them to a sitting position.
- Step 3:** Assist the victim to his or her feet and place the arms around your shoulders, if possible.

**Step 4:** Place your free hand around the person's waist and let him or her set the pace on hobbling out.

**Step.5:** Help the victim for moving slowly.

## Do



- Shock can be life threatening. Symptoms include cold sweat, weakness, irregular breathing, chills, pale or bluish lips and fingernails, rapid weak pulse and nausea.

SHOCK	Do's	Don't
Shock	Take a rest	Do not give the victim anything to eat or drink
Shock	Lay the victim on his/her back	Do not move him/her.
Shock	Keep the victim warm by using the blanket or clothes.	Do not keep the victim hot.
Shock	If the victim not in pain, raise their feet and legs with a pillow.	If victim in pain do not move.

## Notes for Facilitation



- You could ask the steps to free a person from electrocution.
- You could ask the steps of bleeding and wounds
- You could ask the steps of burn
- You could ask the steps of choking
- You could ask the steps of banding
- You could ask the steps of CPR

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
First aid practices	3 hours	Mannequin
		First aid box

## Do



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.



## 3. 5S & House Keeping

Unit 3.1 – Identification of bottlenecks in functioning of work place

Unit 3.2 - Various methods of housekeeping

Unit 3.3 – Waste management



## Key Learning Outcomes

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

1. Discuss about safety issues at workplace
2. Know about 5S safety management system
3. Discuss about housekeeping practices
4. Know about benefits of housekeeping
5. Know about elements of effective housekeeping
6. Know about waste management practices

## UNIT 3.1: Identification of bottlenecks in functioning of work place

### Unit Objectives

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

1. Discuss about safety issues in the industry
2. Know about housekeeping issues in the industry

### Resources to be Used

- Available objects such as a duster, pen, notebook etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- Manufacturing facilities are riddled with risks, both hidden and out in the open. Hazards can result in serious injury or death, if don't know where to begin looking.
- Few of the biggest safety concerns in any manufacturing setting like hearing protection, eye hazards, chemical exposures, mechanical hazards etc
- The Occupational Safety & Health Administration requires companies to provide hearing guard when noise levels surpass specific levels.
- 61 percent of eye damages occur in the manufacturing, construction industries and trade a report by the Vision Council reports.
- In manufacturing, heat and flame can produce by the tools and equipment, which cumulative the risk for fires.
- During the manufacturing process, at many points dust and fumes are generated. Dense fumes released during the use of oxygen can cause lung diseases.

## Elaborate

Safety concerns in any manufacturing setting are:

- **Hearing Protection:** Hearing can be affected by noise produced by industrial machines if you are uncovered to the noise on a long basis.
- **Eye Hazards:** 61 percent of eye damages occur in the manufacturing, construction industries and trade a report by the Vision Council reports. Eyes may be injured by dust, metal, concrete and other particles thrown by machines. Eyes can burn or irritate by chemical fumes and splashes.
- **Chemical Exposure:** Some employees in manufacturing units work with hazardous chemicals like workers who produce batteries may be exposed to lead in the form of dust or fumes. This can harm nervous, urinary systems and reproductive with lead exposure linked to failures, seizures, coma and death.
- **Mechanical Hazards:** There are several risks to employees while working with manufacturing machines. Machines that have sprockets, gears, pulleys and rotating shafts pose risks of predicament.
- **Fire Hazards:** In manufacturing, heat and flame can be produced by the tools and equipment, which cumulative the risk for fires. Employees should be aware of where to find fire extinguishers and how to rescue the facility immediately in the event of a serious fire.
- **Carbon monoxide poisoning:** In manufacturing industries, blast furnaces and converters generate huge amounts of gases. Once dust has been removed, these gases are used as fuel resources and some are used as raw materials and supplied to chemical plants.
- **Dust and fumes:** During the manufacturing process, at many points dust and fumes are generated. Dense fumes released during the use of oxygen can cause lung diseases. Contact with silica is also a danger for the workers and cause serious infections and injuries.



*Fig 3.1.1: Chemicals*



*Fig 3.1.2: Mechanical hazard*



*Fig 3.1.3: Dust and fumes*

## Notes for Facilitation

- You could ask the students safety concern in manufacturing plant.
- Invite students to participate.
- You could ask the students how carbon monoxide poisoning is released.
- You could ask the students effects of chemical exposure.

## UNIT 3.2: Various methods of Housekeeping

### Unit Objectives

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

1. Know about 5S Safety system
2. Discuss about essential elements of housekeeping
3. Know about good housekeeping practices

### Say

- 5S is a fundamental, systematic, basic, approach for quality, productivity and safety improvement.
- 5S is created by a list of five Japanese words: seiri, seiton, seiso, seiketsu, and shitsuke.
- Workplaces hazards can be eliminate by effective housekeeping and complete a job safely and properly.
- Poor housekeeping and hiding hazards can cause frequent accidents which can cause injuries.
- Elements of an effective housekeeping program are Dust and Dirt removal, clean surfaces, Maintain light fixtures, aisles and stairways, spills control, waste disposal, storage etc.

### Elaborate

5S is created by a list of five Japanese words: seiri, seiton, seiso, seiketsu, and shitsuke. 5S system is implemented for organizing the workplace for increasing effectiveness and efficiency by maintaining the area and items, storing the items used, and sustaining the new practices.

Purposes of conducting regular 5S audits are:

- Evaluation of 5S standards for industry
- To fix what is wrong! - note and address non-compliance
- Give a official chance to suggest improvements

The basic steps of 5S audit are:

- Plan for the audit. Divide the workplace into several areas for successful audit reviews.

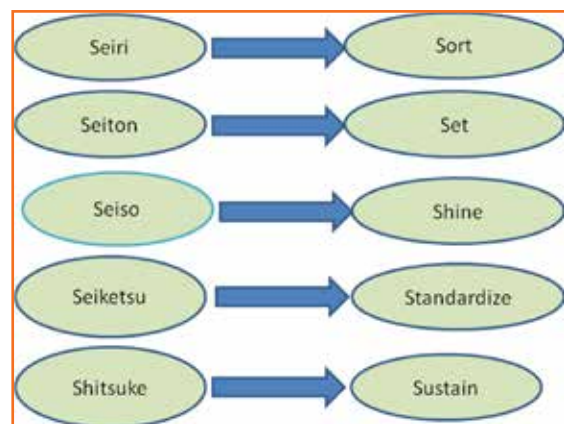


Fig 3.2.1: 5S terminology

- Based on the standards set during audit, make a list for every area.

Three key tasks has to be done during the audit

1. Find out whether known difficulties have been addressed:
  - Lubricants are still leak from this machine?
  - People are not walking under crane, is the warning sign in place?
  - Why outdated drill press is still in the workshop?
2. Look into the standards is being met:
  - Are tools left on work tables?
  - From the tool rack is something missing?
  - Is dirt collecting anywhere?
  - Are safety labels visible and readable?
3. To be noted that what has not yet been standardized – Most imaginative and hard section, it may include seeing what is missing in an area that seems neat:
  - Why is there no sign over the well-ordered stack of work-in-process materials on that shelf?
  - Tools that are not yet labeled

### Housekeeping

Cleanliness doesn't mean housekeeping. Housekeeping includes keeping work areas tidy and arranged; keep floors free of slip and trip accidents; clearing of waste materials (paper, cardboard) and other fire hazards.

Efficient housekeeping results in:

- Decrease handling to comfort the materials flow
- Fewer slipping and tripping accidents
- Less fire hazards
- Hazardous substances e.g. dusts, vapors exposures to lower worker
- Better control of tools and materials in managing inventory and supplies
- Equipment's are more cleaned and well maintained.
- Better hygienic conditions for good health
- Space utilization is more efficient
- Reduced property damage due to improvement in preventive maintenance
- Improved efficiency because it is easy to find tools and materials.

## Ask



- You could ask the objectives and advantages of 5S
- You could ask the benefits of good housekeeping practices.
- You could ask the elements of an effective housekeeping program

## Notes for Facilitation



- Invite students to participate.
- You could ask about the standards that were set during 5S for make a checklist
- You could ask how housekeeping program make effective.

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Do the 5S audit of your training center and make the 5S Audit form and fill it.

## Field Visit



You could visit any of the industry and show the 5S Safety system and check the various points of safety with the help of housekeeping checklist

## UNIT 3.3: Waste Management

### Unit Objectives

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

1. Discuss about waste management
2. Know about elements of waste management
3. Know about methods of waste management

### Say

- Waste management is gathering, transport, recycling, processing and disposal of waste materials. Waste management is carried by recovering resources from waste materials.
- Waste may be classified as garbage, rubbish, industrial wastes, mining wastes etc.
- Industrial waste can be of two types: non-hazardous and hazardous waste.
- Waste management strategy involves legal and proper decomposition of waste.
- Methods of waste management are segregation, composting and burning.

### Elaborate

#### **Elements of a waste management strategy**

Good waste management practices involve much more than that disposing of waste legally and properly. Strategy for the management of industrial waste can include the subsequent elements:

- Current waste management procedures and primary audit of wastes produced.
- Risk assessment to find that stowage and handling procedures does not possess any health or environmental risk.
- Identification of options for reuse, waste reduction, recovery assessment and recycling of waste.
- Identification of best practicable environment! There should be an option for dumping of waste and residues.
- Selection of the contractor offering the best service and audit of potential waste management contractors.

### Waste management methods

1. **Segregation:** Separation of waste using different containers is necessary because plastics, building materials, glass and waste from the site work could take a really long time period to decompose. This is the reason, thus, it is required to maintain green practices so waste management should be done



*Fig 3.3.1: Waste segregation*

with proper segregation. Thus we make sure to support you in removing hazardous waste from compostable non-hazardous solid waste, organic waste, recyclable materials and other regulated material.

2. **Composting:** This waste management process turns waste into organic compounds that you can use to feed plants. In terms of the environment advantages this is actually beneficial technique. Making use of this method, it's easy to turn unsafe organic products into safe compost.
3. **Burning:** If your approach is not towards disposing materials and other wastes, then burning method will be a good approach for you. If waste is bio-degradable or cannot produce hazardous gases after burning, you can burn the waste.



*Fig 3.3.2: Waste Compositing*

### Ask



- You could ask the elements of waste management strategy
- You could ask from the students' different method of waste management

### Field Visit



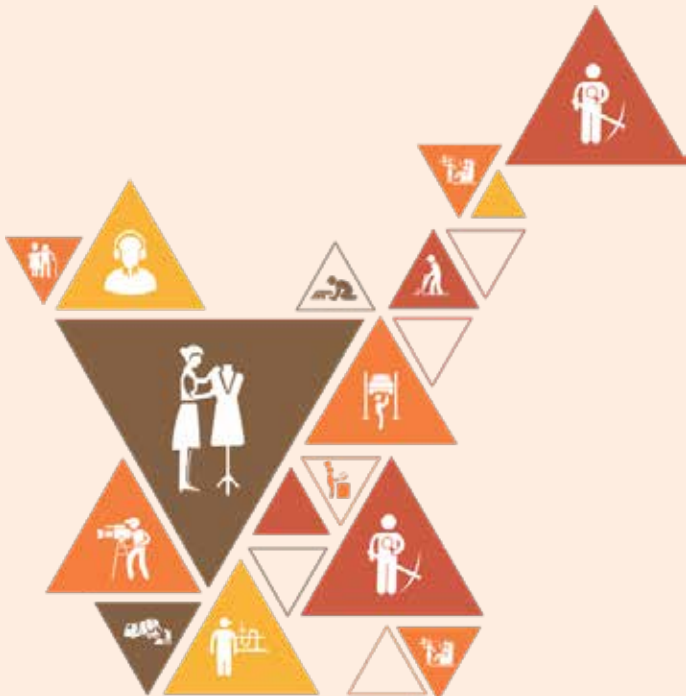
- You could visit any of the industry and show the waste management system and how they do the segregation of waste.





# 4. Instrumentation control equipments

Unit 4.1 – Instrumentation equipments



## Key Learning Outcomes

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

1. Know about various control equipments
2. Know about analyzers
3. Know about alarms and detectors
4. Know about pressure, level, temperature measuring gauges etc.

## UNIT 4.1: Instrumentation equipments

### Unit Objectives

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

1. Know about various control equipments
2. Know about analyzers
3. Know about alarms and detectors
4. Know about pressure, level, temperature measuring gauges etc.

### Resources to be Used

- Available objects such as a duster, pen, notebook, equipments etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- Atmospheric pressure is measured by using barometer.
- Difference in pressure between two points of a fluid in the pipeline can be measured manometer.
- The most common principals for fluid flow metering are:
  - o Differential Pressure Flowmeters
  - o Velocity Flowmeters
  - o Positive Displacement Flowmeters
  - o Mass Flowmeters
  - o Open Channel Flowmeters
- Smoke, gas, flame and water detectors are the examples of detection.
- Speed controller is one of the important control equipment.
- Each vibration transducer has its own distinguishing characteristics and is suitable for different applications.
- Telemetry can be monitored and used to control a process at the remote site.
- Gas and oxygen analyzers are the parts of instrumentation equipments.

## 4.1.1: Pressure measurement gauges

### Say



- Pressure exerted by the air surrounding the earth is called atmospheric pressure and it decreases as we go up from earth surface.
- When there is difference of pressure between two arms of the manometer, liquid levels in the two arms of the manometer do not match. This level difference in the two arms of the manometer represents differential pressure.
- Pressure is measured in gauge units in pressure gauges when unknown pressure is connected to bourdon tube and outside of tube is open to atmosphere.
- Pressure is read in absolute units when unknown pressure is connected to tube and outside of tube is kept at vacuum.

### Elaborate



#### Barometer

**Working principle:** Atmospheric pressure balances the barometric liquid against vacuum and reading obtained as pressure head is in absolute units.

**Construction and working:** A glass tube of at least 76.2 cm length with one end open and other end closed is first completely filled with mercury and open end is plugged. Then the tube is immersed in a mercury pan by keeping the plugged end inside the pan. After this plug is removed and mercury level in tube comes down to a certain level leaving a vacuum in top of tube. The height 'h' from surface of mercury in tube to the level of mercury at top of tube shows the atmospheric pressure acting on mercury in the tube.

#### Manometer

**Principle:** Unknown pressures are balanced by manometers against hydrostatic pressure of a liquid column which can be read from the scale on manometers and this value is same as unknown pressure.

**Construction and working:** An appropriate liquid like water, mercury etc. are filled partially in the U-tube of manometer. Unknown pressure is connected to one of legs of the manometer while other unknown pressure is connected to other leg or other leg is vented to atmosphere.

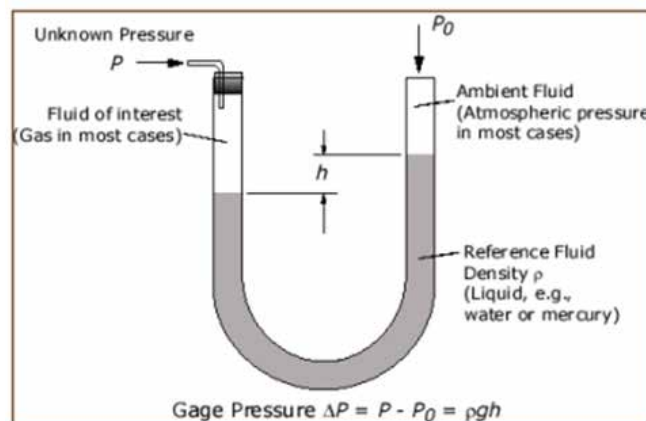


Fig 4.1.1: Manometer

**Bourdon pressure gauge**

**Principle:** It has a curved tube called bourdon tube with one end closed and other end connected to system whose pressure is to be measured. Sealed end straightens up and deflects when pressure is applied to the tube. A linkage mechanism connected between sealed end and gear transfer this movement to an indicating needle and needle moves on a calibrated dial when tube is deflected. Wide range of pressures is measured by bourdon gauges.

**Construction:** Bourdon pressure gauges use different types of Bourdon springs. Winding of the tube is done up to an arc- length of about 270 degrees to produce C-shaped which has the shape of circular segment or C. Tube is wounded in the shape of spiral with a common axis and a number of turns to form spiral bourdon tube and helix type is formed by winding tube in helix form with a number of turns.

**Working:** Tube tries to become circular when pressurized and results in straightening of the tube which cause deflection of the free end called a tip travel. Tube length wall thickness cross section geometry and elastic module of the tube material are factors deciding the tip travel distance for a specific pressure. Adjustable link and segment lever guides and amplifies this linear tip travel and thereafter sector and pinion convert this into corresponding rotary motion of the pointer on a calibrated dial .Pointer is connected on pinion.

**Causes of failure of pressure gauge:**

1. Vibration
2. Pulsation
3. Temperature
4. Overpressure and pressure spikes
5. Corrosion
6. Clogging
7. Steam
8. Mishandling and abuse

**Ask**

- You could ask the principle, working and construction of barometer.
- You could ask the principle, working and construction of manometer.
- You could ask the principle, working and construction of bourdon pressure gauges.
- You could ask the causes of pressure gauge failures.

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.
- Demonstrate the proper use of pressure measurement gauges.

Skill Practice	Time	Resources
Use of barometer Use of manometer Use of bourdon pressure gauges	2 hours	Barometer Manometer Bourdon pressure gauge

## Do



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## 4.1.2: Flow measurement gauges

Say



- Commonly used fluid flow measurement methods are:
  - o Differential Pressure Flow meters
  - o Velocity Flow meters
  - o Positive Displacement Flow meters
  - o Mass Flow meters
  - o Open Channel Flow meters
- In a differential pressure drop device the flow is calculated by measuring the pressure drop over an obstructions inserted in the flow.
- Common types of differential pressure flowmeters are:
  - o Orifice Plates
  - o Flow Nozzles
  - o Venturi Tubes
  - o Variable Area - Rotameters

Elaborate



### Differential Pressure Flowmeters

According to Bernoulli's Equation the differential pressure across the restriction device and the corresponding signal is proportional to square of flow rate through the pipeline.

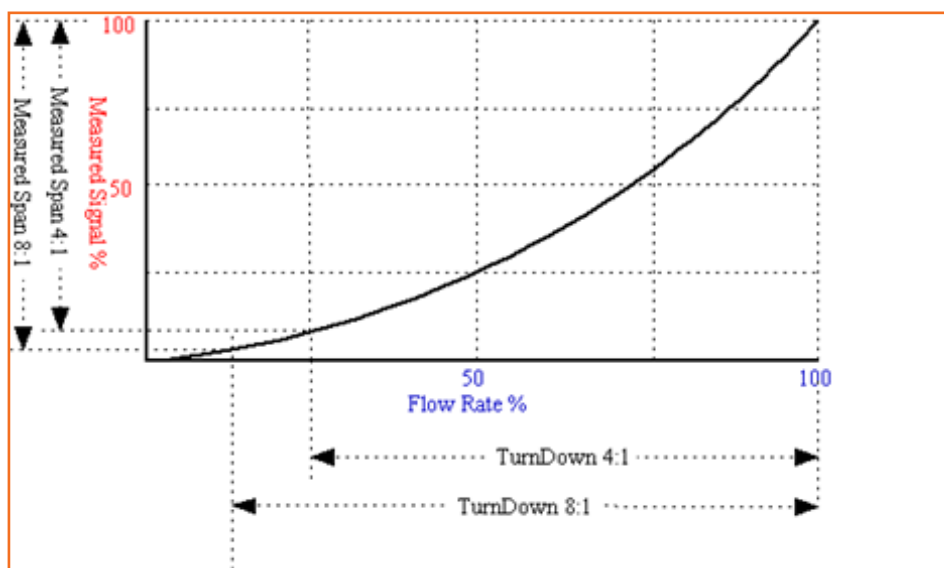


Fig 4.1.2: Bernoulli's equation graph

**Orifice Plate:** Orifice plate has a narrow hole called bore with a diameter less than the pipeline. The plate constricts the fluid flow by its bore that narrows the fluid path and produces a difference in pressure from upstream to downstream of the orifice plate. Their accuracy is low for low flow rates and have a turndown ratio of less than 5:1. A good shaped orifice plate with a sharp edge at the upstream side decides high accuracy.

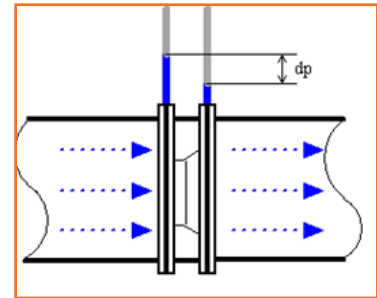


Fig 4.1.3: Orifice plate

**Venturi Tube:** Venturi tube is simple and reliable. It has higher turndown rates and produces only lower pressure differential than the orifice plate. Cross-sectional flow area of the flow path is reduced to create a pressure differential in the venturi tube to measure flow rate.

Flow rate of up to 10% of its full scale range can be measured by this with good accuracy using correct instrumentation and flow calibration. So turndown ratio is 10:1 which is higher than orifice plate.

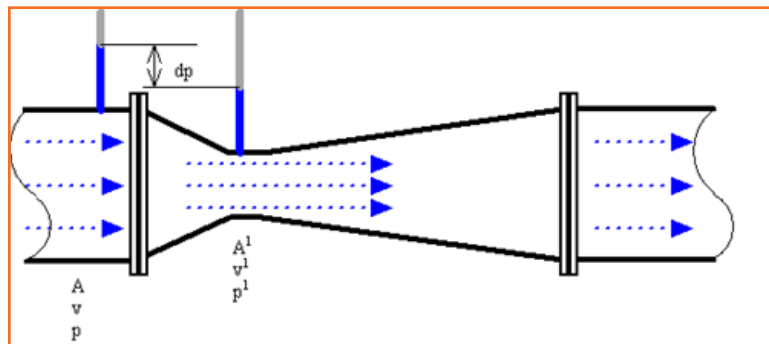


Fig 4.1.4: Venturi tube

**Flow Nozzles:** Air and gas flow are often measured using flow nozzles in industries.

**Variable Area Flowmeter or Rotameter:** The rotameter consists of a vertically oriented glass (or plastic) tube with a larger end at the top, and a metering float which is free to move within the tube. Fluid flow causes the float to rise in the tube as the upward pressure differential and buoyancy of the fluid overcome the effect of gravity. 1% of full scale rating is the accuracy and 12:1 is the Turndown Rate of the rotameter.

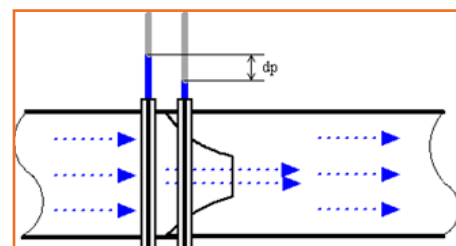


Fig 4.1.5: Flow nozzles

**Velocity Flowmeters:** In a velocity flowmeter the flow is calculated by measuring the speed in one or more points in the flow, and integrating the flow speed over the flow area.

**Pitot Tubes:** The pitot tubes are the most used (and cheapest) ways to measure fluid flow, especially in air applications like ventilation and HVAC systems, even used in airplanes for speed measurement.

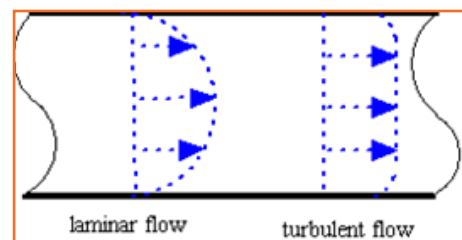


Fig 4.1.6: Velocity flowmeter

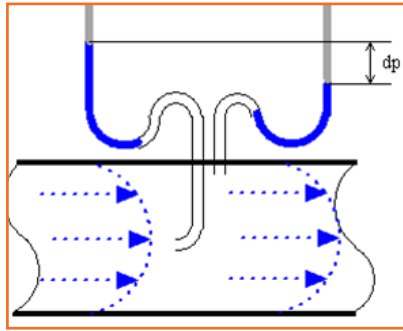


Fig 4.1.7: Pitot tube

**Calorimetric Flowmeter:** The calorimetric principle for fluid flow measurement is based on two temperature sensors in close contact with the fluid but thermal insulated from each other.

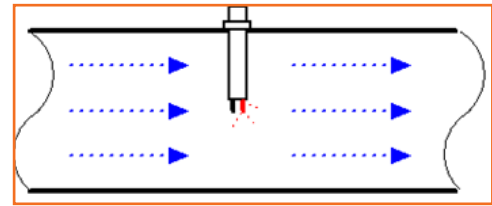


Fig 4.1.8: Calorimetric flowmeter

**Electromagnetic Flowmeter:** An electromagnetic flowmeter operate on Faraday's law of electromagnetic induction that

states that a voltage will be induced when a conductor moves through a magnetic field. The liquid serves as the conductor and the magnetic field is created by energized coils outside the flow tube.

**Ultrasonic Doppler Flowmeter:-** The effect of motion of a sound source and its effect on the frequency of the sound was observed and described by Christian Johann Doppler.

**Positive Displacement Flowmeter:-** The positive displacement flowmeter measures process fluid flow by precision-fitted rotors as flow measuring elements. Known and fixed volumes are displaced between the rotors. The rotation of the rotors is proportional to the volume of the fluid being displaced. Accuracy may be up to 0.1% of full rate with a TurnDown of 70:1 or more.

## Ask

- You could ask about the most common principals for fluid flow metering.
- You could ask the common types of differential pressure flowmeters.

## Notes for Facilitation

- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

### 4.1.3: Level Measurement Gauges

Say



- The simplest and oldest industrial level measuring device is, of course, the sight glass.
- The material used for its transparency can suffer catastrophic failure, with ensuing environmental insult, hazardous conditions for personnel, and/or fire and explosion.
- Improved level measurement accuracy makes it possible to reduce chemical-process variability, resulting in higher product quality, reduced cost, and less waste.
- Other level-detection devices include those based on specific gravity, the physical property most commonly used to sense the level surface.
- Glass level gauges, floats, mechanical components, hydrostatic devices, load cells, magnetic level gauges, capacitance transmitters, magnetostrictive level transmitters and ultrasonic level transmitters.

Do



- Show the different types of level measurement gauges

Elaborate



- **Glass level gauges:** Glass gauges are available in a number of designs, in both armored and unarmored forms. They are the simplest of methods available for liquid level measurement.
- **Floats:** The principle behind the working of floats is placing a buoyant object with specific gravity between that of the process fluid and the headspace vapor, into the tank and attaching a mechanical device to record its position.
- **Mechanical components:** like pulleys, tapes, cables and gears were used in early float systems to record the level. Currently, magnet-equipped floats are more popular.
- **Load Cells:** A mechanical support bracket or member that is provided with one or more sensors for detecting slight distortions in the support member is called load cell or strain gauges. The slight flexing of the member due to a force on the load cell produces a change in the output signal.
- **Magnetic Level Gauges:** Magnetic level gauges are suitable replacements for sight glasses. Although they are similar to float devices, the communication of the liquid surface level occurs magnetically. The float in this case is a set of strong permanent magnets, which move in an auxiliary column that is attached to a vessel by two process connections.
- **Capacitance Transmitters:** Capacitance transmitters are based on the difference in the dielectric

constants ( $\epsilon$ ) of process fluids and air. The basic operating principle is based on the variance in capacitance which itself is based on the variation in the liquid level.

- **Magnetostrictive Level Transmitters:** The benefits of using a magnet to restrict the float in order to determine the liquid level has been proven already. Moreover, magnetostriction is an established technology to enable precise recording of the location of the float.
- **Ultrasonic Level Transmitters:** Ultrasonic devices employ a piezoelectric crystal stored inside a transducer. Sound energy is released towards the material and reflected back to the transducer, which converts the sound energy back to an electric signal.

### Ask



- You could ask about the different types of level measurement gauges.

### Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## 4.1.4: Temperature measurement gauges

Say



- Basic measuring devices for temperature are thermocouples, resistive temperature devices (RTDs, thermistor), infrared radiators, bimetallic devices, liquid expansion devices and molecular change-of-state.
- These devices are small in size, have rugged construction and independent from electricity.

Elaborate



1. **Thermocouples:** Thermocouples are voltage devices that indicate temperature by measuring a change in voltage. As temperature goes up, the output voltage of the thermocouple rises - not necessarily linearly.
2. **Resistive Temperature Devices:** Resistive temperature devices also are electrical. Rather than using a voltage as the thermocouple does, they take advantage of another characteristic of matter which changes with temperature - its resistance.
3. **Infrared Sensors** Infrared sensors are non-contacting sensors. As an example, if you hold up a typical infrared sensor to the front of your desk without contact, the sensor will tell you the temperature of the desk by virtue of its radiation - probably 68°F at normal room temperature.
4. **Bimetallic Devices:** Bimetallic devices take advantage of the expansion of metals when they are heated. In these devices, two metals are bonded together and mechanically linked to a pointer. When heated, one side of the bimetallic strip will expand more than the other. And when geared properly to a pointer, the temperature is indicated.
5. **Thermometers:** Thermometers are well-known liquid expansion devices. Generally speaking, they come in two main classifications: the mercury type and the organic, usually red, liquid type.
6. **Change-of-state Sensors:** Change-of-state temperature sensors measure just that - a change in the state of a material brought about by a change in temperature as in, a change from ice to water and then to steam. Commercially available devices of this type are in the form of labels, pellets, crayons, or lacquers.



Fig 4.1.9: Thermocouple



Fig 4.1.10: Resistive temperature device



Fig 4.1.11: Bimetallic device



Fig 4.1.12: Thermometer

## Ask



- Ask about the type of temperature measurement gauges.
- Ask about the advantages, disadvantages and applications of different temperature gauges.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## 4.1.5: Weight measurement gauges

Say



- Strain gauges are sensors which are used in variety of physical measurements.
- They change unwillingness to accept when they are stretched or squeezed. Since of this property, strain gauges frequently bonded to a solid surface and used for calculating acceleration, pressure, tension and force.
- It is a strip of conductive metal which can be used to measure weight if this elasticity doesn't surpass strain gauge's elasticity.
- Spring scale and hydraulic scale are the parts of mechanical scales.

Elaborate



### Strain gauge inner working

If a strip of conductive metal is stretched, it will become skinnier and longer, which will result an increasing electrical resistance. On the contrary, compress the strain gauge, it will broaden and shorten, hence the electrical resistance will decrease. If these stretches don't exceed strain gauge's elasticity, the strip can be used for measuring weight.

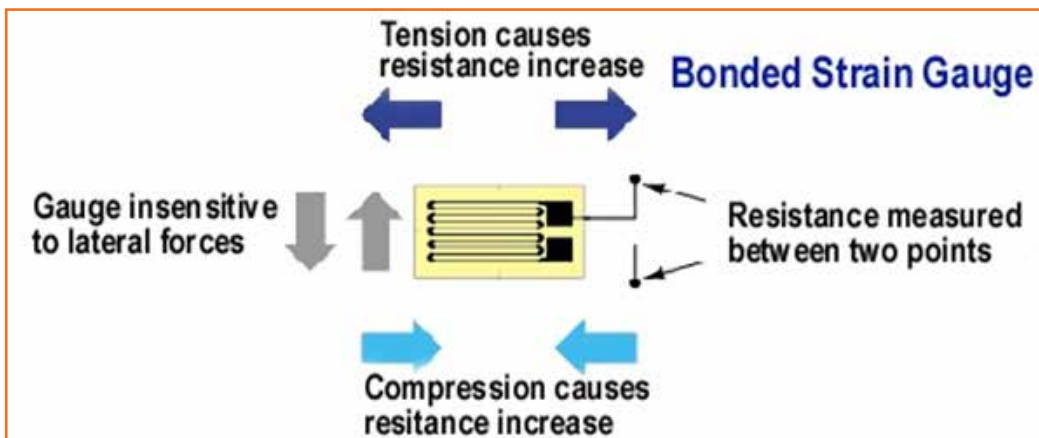


Fig 4.1.13: Strain gauge working

### Mechanical scales

**Spring scales:** A spring scale measures weight by reporting the distance that a spring deflects under a load. Spring scales have two sources of error that balances do not: the measured weight varies with the strength of the local gravitational force (by as much as 0.5% at different locations on Earth), and the elasticity of the measurement spring can vary slightly with temperature.

**Hydraulic or pneumatic scale:** It is also common in high-capacity applications such as crane scales to use hydraulic force to sense weight. The test force is applied to a piston or diaphragm and transmitted through hydraulic lines to a dial indicator based on a Bourdon tube or electronic sensor.

**Sources of error**

Some of the sources of error in weighing are:

- Buoyancy
- Error in mass of reference weight
- Air gusts, even small ones, which push the scale up or down
- Friction in the moving components that causes the scale to reach equilibrium at a different configuration than a frictionless equilibrium should occur.
- Settling airborne dust contributing to the weight
- Mis-calibration over time, due to drift in the circuit's accuracy, or temperature change
- Mis-aligned mechanical components due to thermal expansion or contraction of components
- Magnetic fields acting on ferrous components
- Forces from electrostatic fields, for example, from feet shuffled on carpets on a dry day
- Chemical reactivity between air and the substance being weighed (or the balance itself, in the form of corrosion)
- Condensation of atmospheric water on cold items
- Vibration and seismic disturbances

**Ask**

- You could ask the strain gauge inner working.
- You could ask about the parts of mechanical scale.
- You could ask the sources of error in weighing.

**Notes for Facilitation**

- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## 4.1.6: Fiscal metering

### Say



- Fiscal metering in the oil and gas industry refers to the transactions involving transporting physical substance from one operator to another.
- Custody transfer in fluid measurement is defined as a metering point (location) where the fluid is being measured for sale from one party to another.
- Fiscal metering operations can occur at a number of points along the way; these may include operations, transactions or transferring of oil from an oil production platform to a ship, barge, railcar, truck and also to the final destination point, such as a refinery.

### Elaborate



Fiscal metering generally involves:

- Industry standards;
- National metrology standards;
- Contractual agreements between custody transfer parties; and
- Government regulation and taxation.
- Components of a custody transfer system typically include:
  - Multiple meters/meter runs;
  - Flow computers;
  - Quality systems (gas chromatographs to measure energy content of natural gas and sampling systems for liquid);
  - Calibration using in-place or mobile provers for liquid, or master-meter for liquid or gas; and
  - Supporting automation.

### Ask



- Ask about the fiscal metering.
- Ask about components of a custody transfer system.

## 4.1.7: Detection and alarms

### Elaborate



#### **Smoke detectors:-**

Smoke detectors are recognised as the most common method of fire detection for life safety throughout the world.

There are five types of smoke detection available in Australia with the most common two point types being photo-electric and ionisation. The other three being projected (optical) beam, aspirating and video smoke detection are generally used for specialist applications.



**Fig 4.1.14:** Smoke detector

#### **Gas Detectors:-**

One of the by-products of most forms of combustion is the gas Carbon Monoxide (CO). This colorless, odourless, tasteless and highly toxic gas is produced by incomplete combustion of carbon containing compounds.

#### **Flame Detectors:-**

Flame detectors respond to the production of one or a combination of ultra-violet or infrared spectrums of electromagnetic radiation. These detectors are often used in situations where there is a potential for the rapid development of fire such as flammable liquids.

#### **Water Detectors:-**

A water detector is an electronic device that is designed to detect the presence of water and provide an alert in time to allow the prevention of water damage. A common design is a small cable or device that lies flat on a floor and relies on the electrical conductivity of water to decrease the resistance across two contacts.

### Ask



- Ask about the types of detectors

### Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

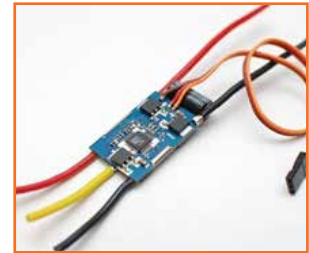
## 4.1.8: Speed controller

### Resources to be Used

- Available objects such as a duster, pen, notebook.

### Say

- An electronic speed control or ESC is an electronic circuit with the purpose to vary an electric motor's speed, its direction and possibly also to act as a dynamic brake.
- An ESC can be a stand-alone unit which plugs into the receiver's throttle control channel or incorporated into the receiver itself, as is the case in most toy-grade R/C vehicles.



*Fig 4.1.15: Speed controller*

### Do

- Show the speed controller to the students

### Ask

- Ask about the speed controller

## UNIT 4.1.9: Vibration monitoring

### Elaborate



Conditions that can cause these vibrations include unbalance, misalignment, looseness of parts, deteriorating rolling element bearing and gear damage.

Three types of vibration transducers to obtain a vibration signal:

1. **Accelerometers:-** Accelerometers are the most widely used vibration transducers for measuring vibrations on stationary machine elements. An accelerometer is a full-contact transducer mounted directly on a system or device under test (DUT). The benefits of an accelerometer include linearity over a wide frequency range and a large dynamic range.
2. **Velocity Transducers:-** Velocity transducers measure the absolute motion of a system or DUT with a response range from 15 Hz to 1.5 kHz. Because of the limited response range and other limitations of velocity transducers, you often use accelerometers instead of velocity transducers in many applications. You can obtain the velocity output from an accelerometer by using the integration function.
3. **Displacement Transducers:-** Displacement transducers to obtain measurements like the relative displacement of a rotating shaft surface. A typical displacement transducer is a shaft-sensing proximity probe. A proximity probe has signal response between DC and 1.5 kHz, as well as flat phase response in the operational range.

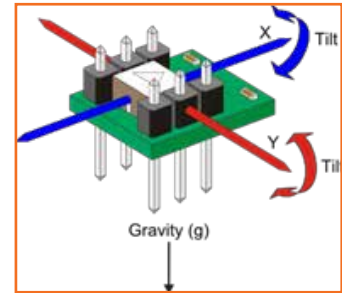


Fig 4.1.16: Accelerometer

Capacitive and eddy-current displacement sensors are best choices for high-resolution, high-speed measurements.



Fig 4.1.17: Displacement transducer

### Ask



- You could ask about the abnormal vibrations and its conditions.
- You could ask the three types of vibration transducers to obtain a vibration signal.

### Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.

- Set guidelines pertaining to discipline and expected tasks.
- Demonstrate the types of vibration transducers to obtain a vibration signal.

Skill Practice	Time	Resources
Vibration transducers	1 hours	Accelerometers Velocity Transducers Displacement Transducers

**Do**



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

**Notes for Facilitation**



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## 4.1.10: Telemetry systems

Say



- Telemetry is defined as the sensing and measuring of information at some remote location and then transmitting that information to a central or host location.
- The basic concept of telemetry has been in existence for centuries. Various mediums or methods of transmitting data from one site to another have been used.

Elaborate



Telemetry using radio waves or wireless offers several distinct advantages over other transmission methods.

**Some of these advantages are:**

- No transmission lines to be cut or broken.
- Faster response time
- Lower cost compared to leased lines
- Ease of use in remote areas where it is not practical or possible to use wire coaxial cables
- Easy relocation
- Functional over a wide range of operating condition

**Some factors that must be addressed when using telemetry system:**

- Architecture of the system
- Implementation horizon
- System requirements in terms of: the location and the number of DCPs, and transmission frequency (short and long-term scenarios)
- System integration and customization requirements
- System installation requirements
- Redundant transmission of data (if necessary)

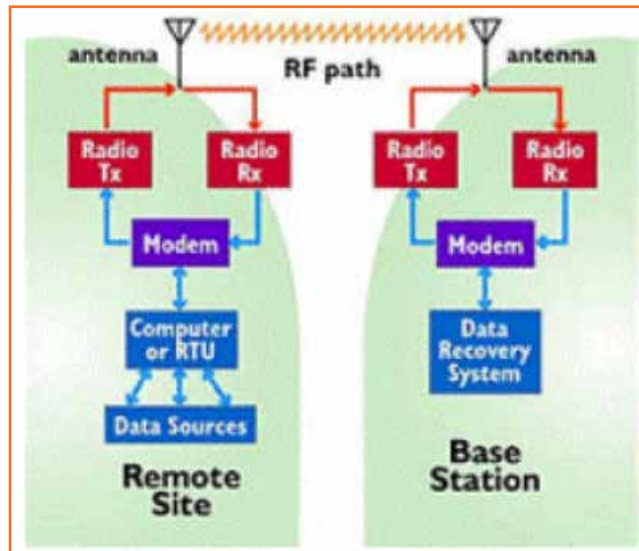
Cost of network installation, support and maintenance:

- Cost of transmission service.
- Data management requirements (data collection, quality control & quality assurance analysis, data processing, system management, user interface, data dissemination).

**Components of a typical wireless telemetry system**

At the remote site, a sensor or sensors are typically the data source. The output of the sensor(s) is converted

to digital data by a small computer device or RTU (Remote Terminal Unit). The RTU is interfaced to a modem device that converts the digital data into an analog signal that can be transmitted over the air. The radio transmitter then transmits the signal to the host site radio receiver. Now the process is reversed. The modem takes the analog signal received and converts it back to a digital form that can be processed by the data recovery equipment.



*Fig 4.1.18: Telemetry system components*

## Ask



- You could ask the concept of telemetry systems
- You could ask the advantages of telemetry systems
- You could ask the factors that must be addressed when using telemetry system.
- You could ask the Components of a typical wireless telemetry system.

## UNIT 4.1.11: Analyzers

### Elaborate



**Gas analyzer:** A gas analyzer measures trace gases by determining the absorption of an emitted infrared light source through a certain air sample.



Fig 4.1.19: Gas analyzer

**Oxygen analyzer:** An oxygen sensor is an electronic device that measures the proportion of oxygen (O<sub>2</sub>) in the gas or liquid being analysed. Oxygen sensors are also used in hypoxic air fire prevention systems to monitor continuously the oxygen concentration inside the protected volumes.



Fig 4.1.20: Oxygen analyzer

### Demonstrate



#### Working of oxygen analyzer

A measuring cell uses a dumb-bell shaped wire which rotates in a magnetic field. The presence of oxygen will affect the magnetic field and cause rotation of the dumb-bell.

The probe at the tap-off point has an integral filter to remove dust. The gas then passes through a separator, a three-way valve and a flow valve. The gas sample, after further separation and filtering, passes to the measuring cell and part of it is bypassed.

The flow valve is used to obtain the correct flow through the measuring cell and a meter provides the reading of oxygen content. The three-way valve permits the introduction of a zeroing gas (nitrogen) and a span gas (air). The span gas gives a 21% reading as a calibration check.

## Ask



- You could ask about the gas and oxygen analyzers.
- You could ask about the working of oxygen analyzers.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.



# 5. Maintenance of instruments

Unit 5.1 – Maintenance

Unit 5.2 – Instruments maintenance activities



## Key Learning Outcomes

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

1. Know about maintenance
2. Know about types of maintenance
3. Know about importance of maintenance
4. Know about wiring diagram
5. Know about maintenance activities
6. Know about objectives of maintenance
7. Know about maintenance records

## UNIT 5.1: Maintenance

### Unit Objectives

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

1. Know about maintenance
2. Know about types of maintenance
3. Know about importance of maintenance
4. Know about wiring diagram

### Resources to be Used

- Available objects such as black or white Board, chalk pieces or white board marker pens, duster.
- PC with LCD Projector or Flip Chart
- Participant Manual

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- Maintenance means routine repairing or checking of mechanical or electrical equipments for avoiding any failure or fault during the work.
- **Corrective maintenance:** Actions intended to repair the faults identified in the equipments comes under corrective maintenance.
- **Preventive maintenance:** It involves servicing of equipments at regular intervals to prevent them from any vulnerabilities and faults. It also involves inspection of equipments for identification of any symptom of problems.
- **Predictive maintenance:** It checks the condition and operational capability of the equipment on the basis of variations in certain variables and predictions, which defines operational capability and condition of equipment.
- **Scheduled maintenance:** Actions which evaluates and inspects the equipment at planned intervals before any fault and to check the decrease in production capacity of equipment. These inspections will repair or replace in the subject of all items wear.

## Elaborate



### Importance of maintenance activities

- Regular maintenance extends the life of your machinery and keeps up its appearance.
- Catch little issues before they become big problems.
- Save downtime and lost revenue.
- Regular attention is usually less expensive than big fixes.
- It can help improve your machines' resale value.

## Ask



- Ask the concept of maintenance.
- Ask from the student different types of maintenance.
- Ask about the importance of maintenance activities.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## UNIT 5.2: Equipments maintenance activities

### Unit Objectives

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

1. Know about maintenance activities
2. Know about objectives of maintenance
3. Know about maintenance records

### Resources to be Used

- Available objects such as black or white Board, chalk pieces or white board marker pens, duster.
- PC with LCD Projector or Flip Chart
- Participant Manual

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- The objective of maintenance is to improve the performance of equipment by make sure that equipment performs frequently and efficiently. It also prevents breakdowns or failures and reduces losses happens due to failures.
- Equipment shall be maintained as specified in the technical procedure.
- Critical equipment shall have documented procedures for the maintenance process.
- Preventative maintenance procedures (other than basic cleaning) for each equipment item shall be developed by each Section unless already described elsewhere (e.g., the equipment manual) and shall be performed according to a regular, predetermined schedule.
- The routine maintenance of any equipment used for health and safety that requires calibration is extremely important.
- Maintenance records shall be maintained and shall include:
  - o Type of equipment

- o Equipment serial number or unique identifier
- o Date of maintenance
- o Adjustments or repairs made
- o Identity of the individual performing maintenance

## Elaborate



Many actions are to be taken to ensure that such an objective is achieved. Following are the list of objective:

1. It keeps plant & equipment in good condition and keeps the production at maximum.
2. Maintain equipment full efficiency with minimum usage of energy.
3. Reduces risks during operation and improves safety.
4. Improves life of equipment with lower cost of operation.
5. Optimize full resource utilization with high productivity.
6. To reduce plant and equipment breakdown hours.
7. To maintain lowest inventory and procurement of spares in time.
8. To improve plant & equipment reliability and productivity.
9. Conducts engineering works like modifications, installation, and relocation.
10. Evaluates performance, takes corrective actions and measures progress.
11. Make the system flexible for any future changes.

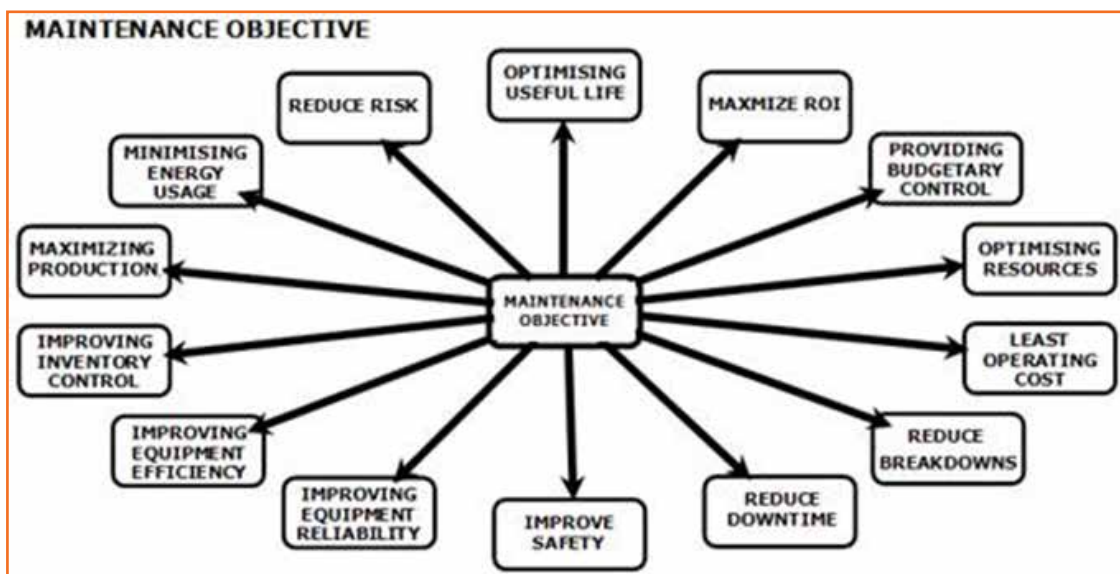


Fig 5.2.1: Maintenance objective

## Demonstrate



- Demonstrate the steps of maintenance process

### Steps



#### Steps of maintenance process

**Step 1. Maintenance Plan:** Depending on the organizational objective and target, maintenance plan need to be constructed. The design and pace of preparing a maintenance plan can alter. The important steps of preparing a typical maintenance plan are:

- Identify organizational goal
- Identify assets contributing to goal
- Prioritize assets by consequences
- Establish targeted performance

**Step 2. Maintenance Input:** These are the means required for carry out the maintenance activities. We need to identifying the W questions like what, when, where and by whom maintenance work is to be done; with all spares, consumables, tools and safety instruction or any other information.

**Step 3. Maintenance Improvement:** The work programme lists all maintenance work to be done for the complete year for each asset. It can be used to recognize work load peaks and valleys, for taking resolution related to work load balancing, overtime and/or part-time help necessity.

**Step 4. Maintenance Control:** For better control of maintenance activities, work is accordingly planned and scheduled. It performs as a basis for arranging and issuing scheduled work orders and for arranging the maintenance budget.

**Step 5. Maintenance Execution:** Maintenance work is to be performed as per schedule, and report is registered.

**Step 6. Maintenance Analysis:** Each plant and equipment performance is analyzed in respect to intended performance level of equipment.

**Step 7. Maintenance Output:** Documentation of the performance of each plant and equipment.

Persons testing/calibrating equipment must be confirmed to:

- Be proficient in the use of the appliance and applicable instruments involved in the testing/calibration;
- Understand the testing/calibration method;
- explain the concepts of traceability of calculation; and
- Be conscious of the importance of inspect or calibration.

## Ask



- You could ask the list of actions is to be taken to ensure that such an objective is achieved.
- You could ask what the steps of maintenance process are.
- You could ask in which area calibration work are not limited.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.



# 6. Performing operation of Calibration

Unit 6.1 – Calibration

Unit 6.2 – Calibration procedure of instruments

Unit 6.3 – Calibration tests of instruments



## Key Learning Outcomes

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

1. Know about calibration
2. Know about calibration standards
3. Know about calibration procedure
4. Maintenance of calibration records
5. Perform calibration of instruments
6. Know about calibration tests
7. Perform calibration tests

## UNIT 6.1: Calibration

### Unit Objectives

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

1. Know about calibration
2. Know about calibration standards

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Resources to be Used

- Available objects such as a duster, pen, notebook etc.

### Say

- Calibration includes establishing and documenting abnormality of the measured value from retraceable, extremely precise standards of inspection. During calibration, known value of instrument is compared with the measured value under specific conditions.
- Each workshop should have:
  - Written calibration procedures and standards.
  - Procedure for preventive maintenance.
  - Qualified personnel for calibration & maintenance of instruments.
  - Qualified personnel for monitoring of maintenance program.
  - Review of calibration program and procedures at regular intervals.

### Elaborate

Calibration standards of equipment:

- Calibration standards of equipment are similar to national standards.
- If identify standards are not accessible, then any independent standard can also be utilized.

- The tolerance of given standard should be tight.
- A process for tracking and monitoring of standards.
- Retention of re-calibration records.
- Establishment of calibration limits should for identification and correction of problems.

#### Instrument calibration tolerances

- Establishment of calibration limits should for identification and correction of problems.
- When passing on tolerances, following considerations should be taken:
  - o Instrument capability
  - o Operating parameters of instrument
  - o Environmental conditions, which can affect the instrument performance
- Practice of using “Alert” & “Action” levels
- “Alert” Tolerance (“Adjustment Limit”)
  - o Related to instrument performance
  - o Instrument adjustment level range
  - o Not required - an industry “best practice”

### Ask



- You could ask about the calibration.
- You could ask the manufacturing area of calibration.
- You could ask the calibration standards.
- You could ask the Instrument Calibration Tolerances

### Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## UNIT 6.2: Calibration procedure of instruments

### Unit Objectives

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

1. Know about calibration procedure
2. Maintenance of calibration records
3. Perform calibration of instruments

### Resources to be Used

- Available objects such as black or white Board, chalk pieces or white board marker pens, duster.
- PC with LCD Projector or Flip Chart
- Participant Manual

### Do

- Greet and welcome the participants to the next unit of the program.
- Before starting the session ask them do they have any doubts pertaining to the previous unit.
- Capture their responses on board and share them wherever necessary.
- Tell them that they will learn about calibration procedure.

## 6.2.1: Calibration procedure

Say



- To perform calibration you have to follow a procedure

Elaborate



**Calibration and maintenance procedures are**

- detailed processes and limits for reliability & correctness;
- remedial action taken when reliability & correctness limits are not met,
- manufacturer's manuals;
- requirements for laboratory instrumentation;
- performance checks for regularly scheduled calibrations.

**Each calibration & maintenance procedure includes:**

- department identification which is responsible for calibration and maintenance
- detailed calibration instructions and procedures;
- preventive maintenance methods;
- equipment required for calibration;
- calibration parameters and tolerance;
- required environmental controls or conditions;
- adjustment provisions;
- actual measurements required for records;
- procedures have to perform if calibration of instrument is not possible;
- calibration & maintenance activities records.

Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Calibration	1 hours	Measuring instrument
		Calibration equipment

**Do** 

- Ask them to get practice the activity alone.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## 6.2.2: Calibration records

### Elaborate



#### Calibration & maintenance records

- Retention of calibration records according to organizational procedures.
- Includes measurements and results of adjustments.
- Calibration tolerances and limits.
- Standards and test instrument utilized.
- Review must ensure the approved activities have been accomplished and all results have passed the confirmed acceptance criteria.
- Periodic evaluation of calibration & maintenance data.

Calibration records shall be saved with the serial numbers of each instrument. Calibration records should include:

- Equipment and software.
- Manufacturer name.
- Serial number of equipment.
- Calibration date.
- Manufacturer's manual.
- Reference standards and material used.
- Copies of all reports and results.
- Next calibration due date.
- Personnel doing calibration.

### Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Maintenance of calibration records	1 hours	Measuring instrument Records

**Do** 

- Ask them to get practice the activity alone.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## 6.2.3: Calibration of instruments

Say



- To perform calibration of gauges there are several methods.
- Each type of gauge has different method of calibration

Demonstrate



### Calibration of pressure gauges

1. Manometer is subjected to known differential pressure and the corresponding height difference is noted.

#### Sources of error:

- **Temperature effect:** Manometric liquids' density is reduced by increase in temperature causes error in reading due to out of calibration.
  - **Capillary rise:** At least 10mm should be the diameter of tube to avoid the capillary rise effect, otherwise error will be created by capillary rise.
  - **Meniscus shape:** center of the meniscus is the point from where reading of manometer to be measured. Mercury forms a convex meniscus while water forms a concave meniscus
2. Bourdon gauge are calibrated with the help of dead weight tester or by comparison calibration.

### Calibration of flowmeters

1. **Transit time method:** In transit time method, a pulse from a radiotracer is introduced into the calculated flow. In this method, a radiation detector is placed outside of the pipe. The volume of flow is calculated by multiplying the measured average fluid flow velocity of inner pipe. Now compare this reference value of flow value with flow value calculated by the flow measurement to be calibrated.
2. **Tracer dilution method:** This method is utilized to calibrate open channel flow measurements. A known tracer concentration solution is introduced at constant velocity into the passage flow. Now tracer solution is thoroughly mixed with the cross section flow. Take the sample and compare its tracer concentration with the injected solution. Calculate reference value by using the tracer balance condition between injected flow and diluted flow. The best recognized calculated uncertainty is 1%.

### Calibration of temperature measuring instruments

Calibration of a thermometer can be done by analyzing different ranges of temperature.

#### 1. Hot processes – boiling water method

1. Boil the distilled water and measure its boiling point.

Enter boiling point: \_\_\_\_\_ (1)

2. Place the thermometer in hot water bath. Now immerse the stem near the sensing region indentation.
3. Allow reading to be stabilize for one minute  
**Enter observed temperature:** \_\_\_\_\_ (2)
4. Compare reading with calculated boiling point.
5. Correct the indicator needle of bimetal ther–mometer. Adjust the coil spring by turning the hex nut behind the thermometer head. If the thermometer is digital then adjust the temperature by calibration button.

**Conversion factor (3) = (1) – (2) = \_\_\_\_\_ (3)**

6. Check the calibration reading by repeating steps 1-4.

## 2. Cold processes – ice bath method

1. Make an ice slush bath by filling a container with crushed ice and water.  
Freezing point temperature = 0°C (32°F) (1)
2. Place the bimetal thermometer in the ice slush and ensure that the sensing region of instrument is completely dipped and thermometer is not touching the container. Stir the slush slowly.
3. Allow reading to be stabilize for one minute  
**Enter observed temperature:** \_\_\_\_\_ (2)
4. Appropriately compare the readings and adjust bimetal thermometer.

## 3. General calibration with certified reference thermometer

1. Measure temperature of an object with reference thermometer. Allow the reading for one minute to get stabilizes.
2. Place the thermometer in the ice slush and ensure that the sensing region of instrument is completely dipped and thermometer is not touching the container.
3. Compare readings  
**Reference thermometer reading:** \_\_\_\_\_ (1)  
**Bimetal thermometer reading:** \_\_\_\_\_ (2)
4. Appropriately adjust bimetal thermometer.

## 4. Double-point calibration technique

1. Make an ice bath.
2. Prepare a boiling water bath.
3. Measure temperature of ice bath by an uncalibrated thermometer and mark it as (A).  
**Uncalibrated Ice Bath Temperature:** \_\_\_\_\_ (A)
4. Measure temperature of boiling water bath by an uncalibrated thermometer and mark it as (B).  
**Uncalibrated Boiling Water Bath Temperature:** \_\_\_\_\_ (B)
5. Record  $X = B - A$  \_\_\_\_\_ (X)
6. Now, record the temperature of boiling water bath (Hot) and of the ice bath (Cold) from calibrated reference thermometer.  
Actual Ice Bath Temperature: 0°C (Cold)

Altitude-Corrected Boiling Point of Water: \_\_\_\_\_ (Hot)

7. Record:  $Y = \text{Hot} - \text{Cold}$  \_\_\_\_\_ (Y)

8. Record:  $Z = Y/X$  \_\_\_\_\_ (Z)

9. Record:  $S = \text{Cold} - (A \times Z)$  \_\_\_\_\_ (S)

10. Actual Temperature =  $Z \times \text{Thermometer Reading} + S =$  \_\_\_\_\_ (Actual Temperature)

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Calibration methods of gauges	3 hours	Pressure gauges Temperature gauges Any object for measurement

## Do



- Ask them to get practice the activity alone.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.

## UNIT 6.3: Calibration test of instruments

### Unit Objectives

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

1. Know about calibration tests
2. Perform calibration tests

### Say

- A visual test inspects the surface of product for bead appearance, width and thickness and defects like undercut, overlap, cracks, pits and slag inclusions.
- A leak is a flow of gas or liquid through a hole or crack in the wall of a vessel.
- Soak test authenticates system's steadiness and performance characteristics over a comprehensive time period. This test recognizes problems relating to memory allocation, log file handles and database resource utilisation.
- Bulk current injection (BCI) test utilize current probes for conducted emissions (CE). In this test, current probe acts as single turn primary, transformer acts as multiple turn secondary, when they are located around a power line which can drive a required signal into 50ohm receiver.
- BCI testing confirms that RF signals, there is no degradation in performance of equipment, when cables and power supply lines are attached. It also provides an amplitude/frequency malfunction signature. The real injected current is observed by an observing current probe.
- In order to carry out a Bulk Current Injection Test, the following equipment may be required: Measurement receivers, signal generator, amplifier, injection current probes, broadband current probes (Monitor probes), dual directional couplers, RF cables, 50 ohm attenuators and 50 ohm loads.
- In 5 point calibration of instruments, the output is measured at 0%, 25%, 50%, 75% and 100% of the calibration range of the instrument.
- Some instruments, such as gas sensors and sound level meters are needed to test before the use.
- Checking is different than calibration. Checking identifies the proper functioning of an instrument by giving the authentic measurement results.

## Elaborate



### **Leak sizes and measurements of leak rates**

Shapes of leaks are very dissimilar, hidden and non-uniform. Therefore it is not possible to calculate their sizes with any geometrical dimension apart from any case of an absolute or artificial leak.

Leak rates can be defined in two ways:

- As per their terms of the application. For example: use of 3 g refrigerant R-12 for 2 years at a pressure of 5 bar or 65 m of oil at 600 C per year.
- As per terms of vacuum leak detection method. For example: 2 mbar pressure increase in 1 hour or  $3 \times 10^{-7}$  mbar/s helium.

The maximum obtainable leak rate for a given product is based on its nature. Testing of leaks can cause unnecessary increase the cost of production, so in some cases leaks can be tolerable.

### **Soak test**

#### **Characteristics of Soak Testing**

- Duration of soak test can be identified by given time.
- Any application can run without any interruption if it needs a comprehensive time period.
- It covers all situations which are related to the stakeholders.
- Each system has an orderly maintenance window period of time and time between such window periods is a key driver for identifying soak test scope.

#### **Common issues observed during Soak Testing**

1. Allocation of memory
2. Utilisation of database resources
3. Performance degradation can also occur, so it ensures that response time after a long period of sustained activity is as good as it was at the test starting.
4. Failure in closing of connections between tiers of a multi-tiered system under some situations which could stand some or all network modules.
5. Regular deprivation in response time of some functions.

### **Signal injection test**

#### **Pre-calibration:**

1. Clamp the injection probe on calibration fixture as shown.
2. The calibration fixture will be terminated in a 50 ohm, 50 watt. One end of probe connects at RF load and other end requires a 50 ohm receiver and 30 dB attenuator.
3. Signal generator transfers the signal into injection probe.

#### 4. Pre-calibration procedure steps:

- a) Start and increase the test signal level in current probe till that the required level is reached in the calibration fixture.
- b) Document the forward power and reverse power mandatory to create the accept/reject level of current.
- c) Rise the test signal until the specification levels of current are attained.
- d) Record the onward power and move backwards power mandatory to create the specification levels of current.
- e) Restate steps 1-4 above the required frequency range. The calibration frequency range may enlarge from 10 kHz to 400 MHz.
- f) The forward power in steps 1-4 determines total power from amplifier needed to attain required levels of current.
- g) The test report should have record of data generated in steps 1-4.

#### **Injection test procedure:**

1. Perform pre-calibration process and document the current in broadband current probe.
2. At each frequency of test, raise signal level till that fault occurs in broadband current probes. Then check the following:
  - o Current in Broadband Current Probe
  - o Forward power introduce
  - o Reverse power introduce
3. Repeat that test for all frequencies.
4. At frequencies where the equipment shows susceptibility, decrease signal levels till that susceptibility ends.

#### **5-Point calibration method**

##### **Pre-calibration**

In 5 point calibration of instruments, the output is calculated at 0%, 25%, 50%, 75% and 100% of the calibration range of the instrument. In 5 point calibration process, output readings are taken for upscale and downscale values of the calibration range to determine the repeatability and hysteresis of the instrument. In 5 point calibration LRV = 0% AND HRV = 100%.

##### **Steps involved in 5 point calibration**

1. Zero adjustments (at LRV)
2. Span adjustments (at URV)
3. Linearity adjustments at 25%, 50%, 75%

## Demonstrate



- Demonstrate the steps of pre-calibration procedures.
- Demonstrate the steps of injection test procedure.

## Ask



- You could ask about the concept of visual inspection.
- You could ask the leak size and measurements of leak rates.
- You could ask the characteristics of soak testing.
- You could ask common issues observed during soak testing
- You could ask what equipments are required In order to carry out a Bulk Current Injection Test.
- You could ask the concept of pre-calibration.
- You could ask what steps are involved in 5 point calibration are.
- You could ask the concept of operational check.

## Notes for Facilitation



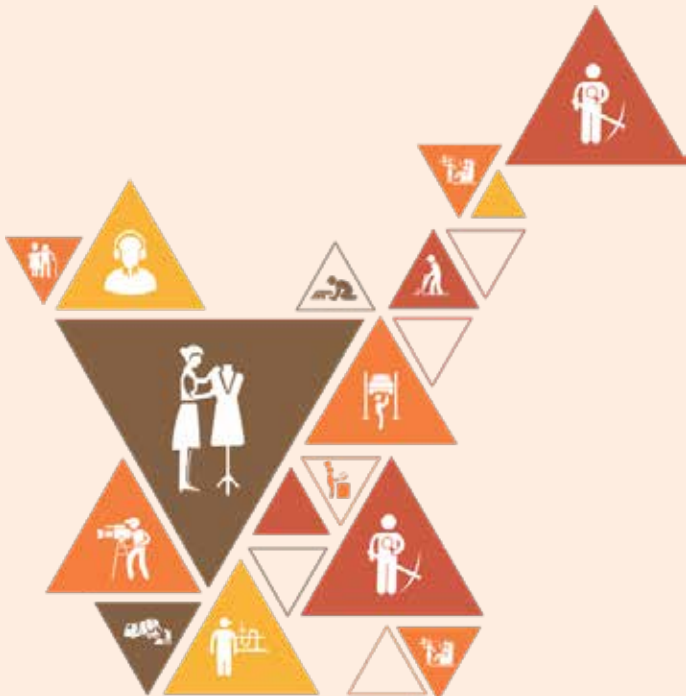
- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.



# 7. Reporting and Documentation

Unit 7.1 – Documentation for health and safety

Unit 7.2 - Documentation of defects



## Key Learning Outcomes

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

1. Know about reporting and documentation requirements
2. Know about accident reporting
3. Know about reporting of defective tools

## UNIT 7.1: Documentation for health and safety

### Unit Objectives

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

1. Discuss about accident and incident reporting
2. Know about how to write reports properly
3. Know about how to escalate the issues properly

### Resources to be used

- Available objects such as a duster, pen, notebook etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- It is of utmost importance to inform about the accidents and incidence straightaway, irrespective of the impact of it.
- Hazard reports can take a number of different forms:
  - o the standard hazard report used by workers for all hazards
  - o reports of infections
  - o near-miss incident reports
  - o reports of damage and faulty tools, equipments and machines
  - o routine inspection reports
  - o Behavior incident reports.
- Reporting of incidents and accidents is required under the Work Health and Safety (WHS) legislation
- 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 it can be completed by a health and safety representative (HSR) if necessary.

## Elaborate



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.

## Ask



- You could ask the areas covered in form
- You could ask the suggestions for completing appropriate report

## Notes for Facilitation



- You could ask the students why reporting and documentation is necessary.
- You could ask from the students about the important things to remember filling reports and documents.
- Assume you got an accident at work place on your knees. File a report and inform the management about the accident.

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.
- Make the fire accident report

Skill Practice	Time	Resources
Fire accident report	1 hour	Checklist

## Do



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## UNIT 7.2: Documentation of defects

### Unit Objectives

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

1. Know about reporting of faulty and damage tools

### Say

- Like accident or incident reporting, reporting of faulty and damaged machine, tools and equipments is also necessary.
- Any damaged, faulty or malfunctioning tools, equipment should be immediately withdrawn from use and addressed according to organizational policies and procedures
- You should have to check the following details before doing reporting or providing any repair suggestions:
  - o Last date of inspection
  - o Last date of repair and which part was repaired.
  - o Life cycle of the tool, equipment or machine

### Elaborate

In machine or equipment faulty or damage report you have to provide following details:

- Name of the tool or machine
- Registration details of machine
- Who does the inspection of toll and machine before the use
- Trouble or hazard from the defective tool or machine
- Defective part name or number
- Remedial action - Tool or machine has to be discontinue or need repair
- Which process is going to affect due to the faulty machine or tool
- Report whether the machine or tool is performing accurately or precisely.
- Report that there limits, fits and tolerances are set or not according to industrial standards.

## Ask



- You could ask the details before doing reporting or providing any repair suggestions
- You could ask the details which are to be required In machine or equipment faulty or damage report

## Notes for Facilitation



- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.





# 8. Problem identification and escalation

Unit 8.1 – Risk management

Unit 8.2 – Escalation matrix



## Key Learning Outcomes

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

1. Know about identification of problem
2. Know about risk management process
3. Know about escalation matrix and problem escalation process

## UNIT 8.1: Risk Management

### Unit Objectives

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

1. Discuss about risk management process
2. Know about inspecting controlling and controlling the problems

### Resources to be used

- Available objects such as a duster, pen, notebook etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- Risk Management consists of methodical steps for handling hazards in the workplace.
- One major component of risk management is workplace safety inspections. Inspections are a major tool in ensuring that a workplace remains safe.

### Elaborate

One major component of risk management is Workplace Safety Inspections. Inspections are at major tool in ensuring that a workplace remains safe. They help to identify and address new problems or unsafe conditions. Do the inspection according to the inspection checklist made by the organization according to their norms and standards.

After inspection, make an inspection report, which includes the following information:

1. Fill in the name of the area inspected if not already indicated on the sheet, the date and inspectors' names in the area provided. Make sure all pages are attached and kept together with the front page.

2. Check either yes or no according to the situation or item listed, or put a check next to each listed control. If you can't check off the presence of a control, or answer no to any of the questions, this indicates action is needed. To better prioritize action, evaluate the hazard's severity.
3. Record suggested remedial action in the comments for the identified action items. State what needs to be or should be done to correct and better control the hazardous situation.

## Demonstrate



- Explain the benefits of workplace inspection.
- Demonstrate the process of risk assessment

### Steps – Risk assessment



Risk management is the process of:



*Fig 8.1.1: Risk management process*

- Step 1: Identifying** any anticipated problem – Anything that could lead to any harm to any person in the work place, e.g. machine moving, poisonous chemicals, and jobs requiring physical interference.
- Step 2: Evaluating** the issues – Assessing the problem on the basis of their impact, e.g. can it cause a severe injury, sickness or fatality and how likely is this to take place?
- Step 3: Control** the problem or if it's not feasible, controlling the threat arising out of the problem – putting in to practice such strategies that can eradicate or manage the problem, e.g. designing

the equipments differently, putting in machine guards at place, using harmless chemicals, placing heavy objects lifting equipments to reduce manual weight lifting or PPE or inform to supervisor or seniors.

**Step 4: Analyzing** risk evaluation - to keep a check on control measures and adding better control measures. Also need to discover secure ways of doing things.

## Ask



- You could ask how to control the problems
- You could ask from the students risk management process

## Notes for Facilitation



- You could ask the students what are the important information make an inspection report

## Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.
- Make the checklist of inspection according to norms and standards and Conduct the inspection of workplace

Skill Practice	Time	Resources
Inspection	1 hour	Checklist

## Do



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## UNIT 8.2: Escalation Matrix

### Unit Objectives

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

1. Discuss about problem management process
2. Know about escalation matrix

### Resources to be Used

- Available objects such as black or white Board, chalk pieces or white board marker pens, duster.
- PC with LCD Projector or Flip Chart
- Participant Manual

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- For escalating issues to the concerned department, every organization follows a specific procedure. This procedure is based on escalation matrix.
- Escalation matrix is a complaint logging system (complaint box) allows you to specify multiple user contacts to be notified in the event of issues.
- By using escalation matrix you can notify the right people at the right time about critical alerts irrespective of the business hours. The escalation matrix is time zone specific and it is available 24X7.

### Elaborate

- **Key features of escalation matrix are as follows:**
  - The escalation levels are based on schedules.
  - The service is available 24X7 and schedules are allocated accordingly.

- The schedules are –me zone specific.
- A matrix can be defined at multiple levels ranging from senior management to lower management.

#### **Problem management process**

1. Identify problems as described earlier
2. Logging problems – Log the complaint report to the concerned person via email or procedure specified by organization.
3. Categorize problems – categorize the problems into hazards, accidents, faulty tools or equipments and general problems.
4. Prioritization of problem – prioritize the problem according to its impact or severity into high, low, moderate and critical.
5. Initially diagnosis the problem and collect data and information regarding that.
6. Escalate the problem to the management through the escalation procedure.
7. Review the remedial action taken by the management to resolve the situation
8. If found any problem again, then notify the management again about the problem and also suggest the remedial action required for it.
9. Close the complaint after solution of problem.

## **Demonstrate**

- Explain the benefits of workplace inspection.
- Demonstrate the process of risk assessment

## **Steps - Escalation Matrix**

**Step 1:** Complaint of a given category will by default be assigned and notified by email to the Level 1 department of that category.

**Step 2:** It defines which an issue has to be raised to whom and within which time frame.

**Step 3:** If the complaint is not resolved within X number of days (X is the time defined for Level 1 department to resolve the issue), the complaint will be escalated to Level 2 department.

**Step 4:** If the complaint is not resolved within Y number of days (Y is the time defined for Level 2 department to resolve the issue), the complaint will be escalated to Level 3 department.

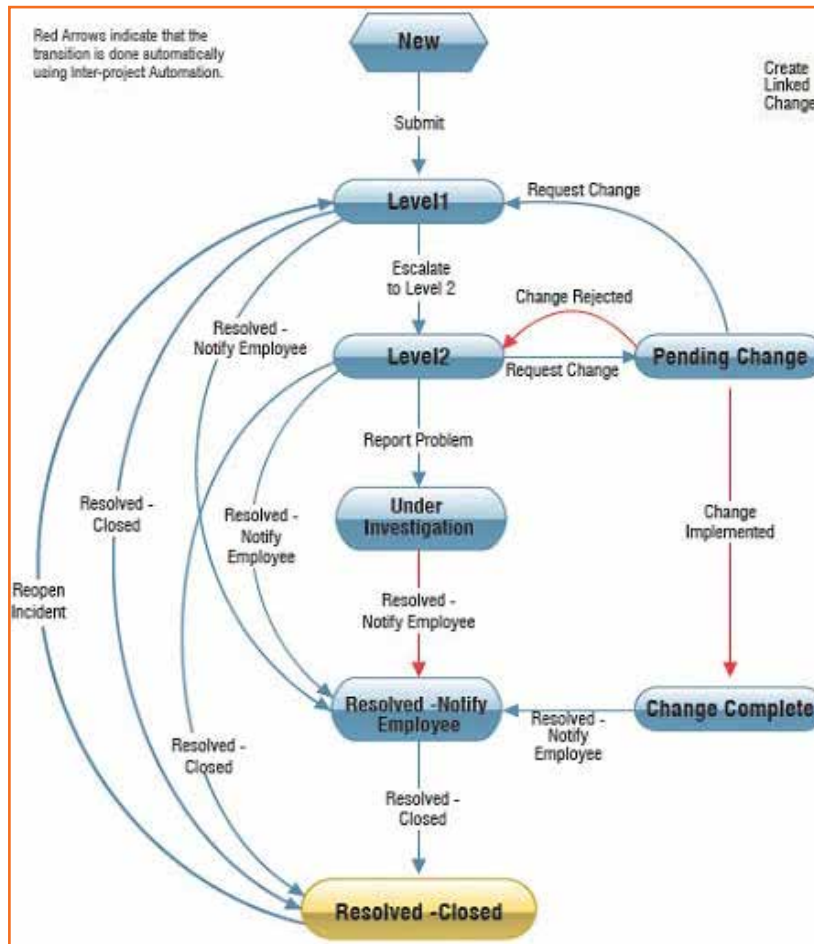


Fig 8.2.1: Escalation matrix

Ask



- You could ask what is escalation matrix and its features
- You could ask the process of problem management
- You could ask how does escalation matrix work for complaints

Notes for Facilitation



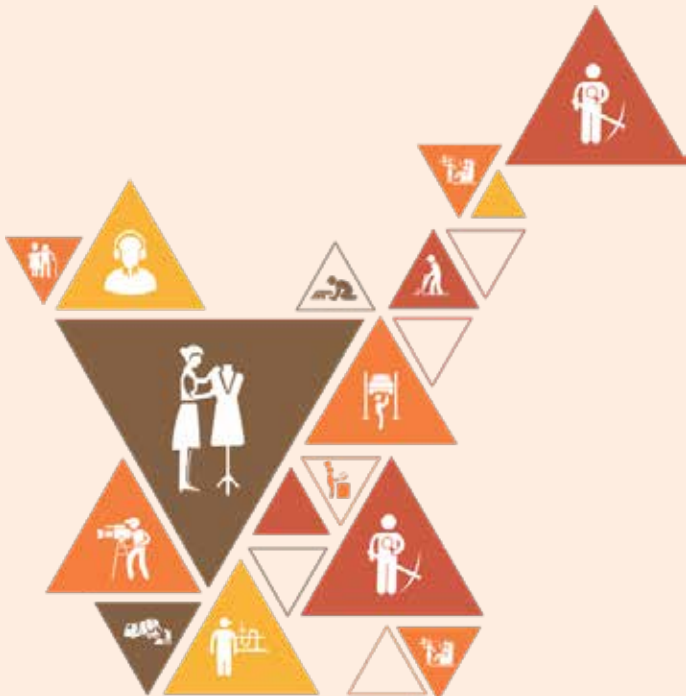
- Summarize the main points.
- Ask participants if they have any doubts.
- Encourage them to ask questions.
- Answer their queries satisfactorily.



# 9. Work effectively with others

Unit 9.1 – Ensure appropriate communication with others

Unit 9.2 – Workplace etiquettes



## Key Learning Outcomes

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

1. Know about effective communication with colleagues
2. Know about workplace etiquettes

## UNIT 9.1: Ensure appropriate communication with others

### Unit Objectives

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

1. Know about how to communicate effectively with colleagues
2. Know about effective communication

### Resources to be used

- Available objects such as a duster, pen, notebook etc.

### Do

- Welcome and greet the participants. Revise the learnings of the previous sessions and ask them if they have any doubts.

### Say

- The success of the organization depends on each colleague.
- For success of organization learn your co-workers' names and learn them quickly because people loves hear their names.
- It doesn't matter a person is more or less significant because of his/her designation. You should respect every employee.

### Notes for Facilitation

- You could ask the students what are the ways of effective communication with colleagues

## Team Activity



- Conduct a skill practice activity.
- Ask the students to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Skill Practice	Time	Resources
Effective communication between 2 persons	1 hour	Communication tools

## Do



- Ask them to get into pairs for practice.
- Go around and make sure they are doing it properly.
- Wrap the unit up after summarizing the key points and answering questions.

## UNIT 9.2: Workplace Etiquettes

### Unit Objectives

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

1. Know about organization policies and procedures
2. Know about workplace etiquettes

### Say

- Workplace etiquettes are also important aspect of organization policies and procedures.
- Work station should be professional and well-ordered with suitable private touches! It reflects good impression on the team mates.
- Make a Positive impression, cooperate with colleagues and work space savvy are some important tips to help you succeed on the job.
- Work station should be professional and well-ordered with suitable private touches! It reflects good impression on the team mates.

### Elaborate

Organization policies and procedures while working with colleagues:

- Never use abusive words with the colleagues
- Follow work etiquettes
- Never share secret or confidential information with your colleagues
- Help your colleague in case of emergency or difficult situations
- Coach your colleagues in case of problems and about organization policies and procedures.
- Communicate with them properly.

### Notes for Facilitation

- You could ask the role of colleagues in the success of the organization
- You could ask the students how to make a good impression on the job





# 10. Employability & Entrepreneurship Skills

Unit 10.1 – Personal Strengths & Value Systems

Unit 10.2 – Digital Literacy: A Recap

Unit 10.3 – Money Matters

Unit 10.4 – Preparing for Employment & Self Employment

Unit 10.5 – Understanding Entrepreneurship

Unit 10.6 – Preparing to be an Entrepreneur



## Introduction: Employability and Entrepreneurship Skills

This Facilitator's guide includes various activities which will help you as a facilitator to make the sessions participative and interactive.

### Ice breaker

- You can begin the module with the following ice breaker:

#### Five of Anything Ice Breaker Steps:

- Divide the participants into groups of four or five by having them number off. (You do this because people generally begin a meeting by sitting with the people they already know best.)
- Tell the newly formed groups that their assignment is to share their five favourite movies of all time, their five favourite novels or their five least liked films. The topic can be five of anything - most liked or disliked.
- This ice breaker helps the group explore shared interests more broadly and sparks lots of discussion about why each person likes or dislikes their selected five.
- Tell the groups that one person must take notes and be ready to share the highlights of their group discussion with the class upon completion of the assignment.

### Expectation Mapping

1. During the first session and after ice breaker session, ask the participants to answer the following question: "What do I expect to learn from this training?"
2. Have one of the participants write their contributions on a flip chart sheet.
3. Write down your own list of covered material in the training on another flip chart sheet.
4. Compare the two sheets, commenting on what will and what will not be covered during the training.
5. Set some ground rules for the training sessions. Ask the participants to put these rules on a flip chart and display it in the class.
6. You may get back to those sheets once again at the end of the last session of the training.
7. Benefits of doing this activity:
  - Participants feel better as their opinions are heard.
  - Participants get to know what they should expect from the training.
  - The facilitator gets to know which points to emphasize, which to leave out, and which to add during the training.
8. Expectations from the participants:
  - Must sign the attendance sheet when they arrive for class.
  - Conduct themselves in a positive manner
  - Be punctual, attentive, and participative
9. Explain the contents that are going to get covered one by one and connect it with the expectation mapping done earlier.
10. By the end of this exercise, the participants should have a clear understanding of what to expect from the session and what are the areas that will not get covered.

### Defining Objectives

1. Defining the objectives in the beginning of the units sets the mood for the unit.
2. To begin with the end in mind sets the expectations of the participants as what could be the important takeaways from the session.
3. It is also a way of making participants take responsibility of their own learning process.
4. For the facilitator, the objectives decide a designed path to progression so that the learning stays aligned and on track.

5. Read the objectives slowly, one by one, and ask the participants to explain what they think it means.
6. At the end of the session, you could again revisit the objectives to find out from the participants about how many objectives have been achieved.

**In order to effectively facilitate this workshop:**

1. You must have thorough knowledge of the material in the Participant Handbook, and be prepared to answer questions about it.
2. You may also wish to read other material to enhance your knowledge of the subject.
3. There may be issues raised with which you are not able to deal, either because of lack of time or knowledge. You can either state that you will obtain answers and get back to the participants with the information. (In case the query can be turned to an assignment to the class, do so. You can work with the the participants on the assignment.
4. You must have a very clear understanding of what the participants want to accomplish by the end of the workshop and the means to guide the participants.
5. As the facilitator, it is your responsibility to make sure that all logistical arrangements are made for the workshop. This may involve doing it yourself or confirming that someone else has made all necessary arrangements associated with the workshop. Assume nothing and check everything before the workshop begins.
6. To break the monotony and boredom during sessions, introduce mini breaks in the form of stretching exercises, jokes, some group songs or games.
7. Invite discussion from the participants.
8. Probe the participants further and lead them to come to affirmative conclusions.
9. Let the participants answer. No answer is incorrect.
10. Ask one participant to write all the points on the whiteboard.
11. Build the sessions from the answers provided by the class.
12. Prepare for the sessions in advance so that the resources like flipcharts, handouts, blank sheets of paper, marker pens, etc. can be kept ready.
13. Ensure that resources like board, markers, duster etc. is available before your session starts.

**General instructions for role playing:**

1. You are not being asked to be an actor or to entertain. The purpose of the role play is to provide a situation in which you can practice certain skills.
2. When you read the brief, try to imagine yourself in the situation described and behave in a way you feel to be natural – but be conscious of the fact that your role may require a different approach from that which you might normally use.
3. You (and others) may benefit from the change in approach and behaviour. Therefore, try to use the approach you feel to be most appropriate for the circumstances described in your brief.
4. The brief is just the starting point. It simply sets the scene and the tone of session or activity. Try not to keep referring to the brief as this will affect the spontaneity of the meeting. Allow the role play to develop as you think it might in real life and change your reactions in line with the behaviour and responses of others involved.
5. If you find that you have too little information to answer questions or to describe what has happened in the situation, do feel free to add your own thoughts and ideas. Try to keep these within the framework of the role you are taking and try to make your improvisations as realistic as possible.

## UNIT 10.1: Personal Strengths & Value Systems

### Key Learning Outcomes



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

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Discuss the purpose of Swachh Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Discuss motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss the role of attitude in self-analysis
15. Discuss how to maintain a positive attitude
16. List your strengths and weaknesses
17. Discuss the qualities of honest people
18. Describe the importance of honesty in entrepreneurs
19. Discuss the elements of a strong work ethic
20. Discuss how to foster a good work ethic
21. List the characteristics of highly creative people
22. List the characteristics of highly innovative people
23. Discuss the benefits of time management
24. List the traits of effective time managers
25. Describe effective time management technique
26. Discuss the importance of anger management
27. Describe anger management strategies
28. Discuss tips for anger management
29. Discuss the causes of stress
30. Discuss the symptoms of stress
31. Discuss tips for stress management

## UNIT 10.1.1: Health, Habits, Hygiene: What is Health?

### Unit Objectives

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

- Explain the meaning of health
- List common health issues
- Discuss tips to prevent common health issues
- Explain the meaning of hygiene
- Discuss the purpose of Swachh Bharat Abhyan
- Explain the meaning of habit

### Resources to be Used

- Participant Handbook

### Ask

- What do you understand by the term "Health?"
- According to you, who is a healthy person?

### Say

- Discuss the meaning of health and a healthy person as given in the Participant Handbook.

### Ask

- When did you visit the doctor last? Was it for you or for a family member?

### Say

- Discuss the common health issues like common cold, allergies etc. Refer to the Participant Handbook.
- Let us do a small activity. I will need some volunteers.

### Role Play

- Conduct a small skit with volunteers from the class. Consider one of the villagers has been appointed as a health representative of the village, what measures will you as a health representative suggest to the common villagers to prevent common health issues discussed.
- You will need at least 4 volunteers (Narrator, Health Representative, Head of the Village, Doctor).
- Explain the health concerns of the village to the Narrator. The Narrator will brief the class about the skit.
- Give the group of volunteers, 5 minutes to do discuss.
- At the end of 5 minutes, ask the group to present the skit to the class as assuming them as the villagers.
- The class can ask questions to the group as a common villager.

### Summarize

- Through this activity we got some tips on how can we prevent these common health issues.

**Say** 

- Let us now see how many of these health standards we follow in our daily life.

**Activity** 

- Health Standard Checklist from the Participant Handbook.

**Ask** 

- How many of you think that you are healthy? How many of you follow healthy habits?

**Say** 

- Let's do an exercise to find out how healthy you are.
- Open your Participant Handbook section 'Health, Habits, Hygiene: What is Health?', and read through the health standards given.
- Tick the points which you think are true for you.
- Try to be as honest as possible as this test is for your own learning.

**Do** 

- Ensure that all the participants have opened the right page in the Participant Handbook.
- Read aloud the points for the participants and explain if required.
- Give them 5 minutes to do the exercise.
- At the end of 5 minutes, ask the participants to check how many ticks have they got.

**Summarize** 

- Tell them that they need to follow all the tips given in this checklist regularly in order to remain healthy and fit.

**Ask** **Discuss:**

- Is it necessary to practice personal hygiene every day? Why?
- How does a person feel when they do not practice good personal hygiene? Why?
- Can good personal hygiene help a person feel good about his/her self? How?

**Say** 

- Discuss the meaning of hygiene as given in the Participant Handbook.

**Activity** 

- Health Standard Checklist: Hygiene

**Say** 

- Let's do an exercise to find out if we maintain good hygiene habits or not.
- Open the Participant Handbook and read through the Health Standard checklist given.
- Tick the points which you think are true for you.
- Try to be as honest as possible as this test is for your own learning.

**Do** 

- Ensure that all the participants have opened the right page in the Participant Handbook.
- Read aloud the points for the participants and explain if required.
- Give them 5 minutes to do the exercise.
- At the end of 5 minutes, ask the participants to check how many ticks have they got.
- Ask them to calculate their score.
- Tell them what each score indicates by reading aloud what has been mentioned in the Participant Handbook.

**Ask** 

- How many of you have heard about "Swachh Bharat Abhiyan"?
- Can you tell the class what it is about?

**Summarize** 

- Tell them about Swachh Bharat Abhiyan as given in the Participant Handbook and request them to take a pledge to keep our country clean.

**Ask** 

- What is a habit?

**Say** 

- Discuss some good habits which can become a way of life.

**Summarize** 

- Tell them about good and bad habits and the reasons to make good habits a way of life.

## UNIT 10.1.2: Safety

### Unit Objectives

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

- Discuss ways to set up a safe work environment
- Discuss critical safety habits to be followed by employees

### Resources to be Used

- Participant Handbook
- Safety signs and symbols
- Safety equipments
- Blank papers
- Pens

### Say

- There are many common safety hazards present in most workplaces at one time or another. They include unsafe conditions that can cause injury, illness and death.
- Safety Hazards include:
  - Spills on floors or tripping hazards, such as blocked aisles or cords running across the floor.
  - Working from heights, including ladders, scaffolds, roofs, or any raised work area.
  - Unguarded machinery and moving machinery parts; guards removed or moving parts that a worker can accidentally touch.
  - Electrical hazards like cords, missing ground pins, improper wiring.
  - Machinery-related hazards (lockout/tag out, boiler safety, forklifts, etc.)

### Team Activity

#### Safety Hazards

- There are two parts to this activity.
- First part will cover the potential safety hazards at work place.
- Second part will cover a few safety signs, symbols and equipments at work place.
- Use this format for the first part of the activity.

PART 1		
Hazard	What could happen?	How could it be corrected?

### Ask

- How could you or your employees get hurt at work?

**Say** 

- Let's understand it better with the help of an activity. You will be given a handout within your groups. You have to think about the possible hazards of your workplace, what damage these hazards could cause and about the corrective action.

**Do** 

- Divide the class into five to six groups of four participants each.
- Put the format on the board for the activity.
- Give blank papers and pens to each group.
- The groups are expected to think and discuss the potential safety hazards in the workplace.
- Ask the group to discuss and fill the format using the blank sheet.
- Give the groups 5 minutes for the activity.
- For the second part of the activity, show the class some pictures of safety signs, symbols and equipments.
- Now they will put down a few safety symbols, signs or equipment against the safety hazards identified.
- Give them 5 to 10 minutes to discuss and draw/note it.
- At the end of 10 minutes the groups will present their answers to the class.

**Say** 

- Now let's discuss the answers with the class.
- All the groups will briefly present their answers.

**Do** 

- Ask the audience to applaud for the group presentation.
- Ask de-brief questions to cull out the information from each group.
- Keep a check on time.
- Tell the group to wind up the discussion quickly if they go beyond the given time limit.

**Ask** **De-briefing**

- What did you learn from the exercise?
- As an entrepreneur, is it important to ensure the safety of your employees from possible hazards? Why?

**Summarize** 

- Ask the participants what they have learnt so far.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the tips to design a safe workplace and non-negotiable employee safety habits.

## UNIT 10.1.3: Self Analysis- Attitude, Achievement Motivation: What is Self Analysis?

### Unit Objectives

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

- Explain the Importance of self- analysis
- Discuss motivation with the help of Maslow's Hierarchy of Needs
- Discuss the meaning of achievement motivation
- List the characteristics of entrepreneurs with achievement motivation
- List the different factors that motivate you
- Discuss the role of attitude in self- analysis
- Discuss how to maintain a positive attitude
- List your strengths and weaknesses

### Resources to be Used

- Participant Handbook
- Old newspapers
- Blank papers
- Pencils/ pens

### Activity

- This is a paper pencil activity.

What are the three sentences that describe you the best?

What do you need to live happily?

What are your strengths and weaknesses?

### Do

- Write the three questions on the board/ flipchart before the session begins.
- Give plain papers and pencils/ pens to each participant.
- Tell participants to write the answer for the three questions on the paper.
- Tell them the purpose of this activity is not to judge anyone but to understand more about self.

### Say

- Discuss the concept of Self Analysis and motivation with reference to Maslow's Hierarchy of Needs as discussed in the Participant Handbook.

### Team Activity

**Tower building**

- Each group will create tower using the old newspapers.

**Do** 

- Divide the class into groups.
- Give them some old newspapers.
- The task is to create a tower out of the newspapers.
- The group which will create the highest tower standing on its own will be considered the winning group.
- Groups can use as many newspapers as they want to and in any way they want.

**Ask** 

- What did the winning group do differently?
- If you were given a chance, how would you have made the tower differently?
- How did you feel while making the tower?
- Did you feel motivated?

**Say** 

- Discuss the concept of achievement motivation and characteristics of entrepreneurs with achievement motivation as discussed in the Participant Handbook.

**Ask** 

- Is your attitude positive or negative?

**Say** 

- Let me tell you a story :

**It's Little Things that Make a Big Difference.**

There was a man taking a morning walk at the beach. He saw that along with the morning tide came hundreds of starfish and when the tide receded, they were left behind and with the morning sun rays, they would die. The tide was fresh and the starfish were alive. The man took a few steps, picked one and threw it into the water. He did that repeatedly. Right behind him there was another person who couldn't understand what this man was doing. He caught up with him and asked, "What are you doing? There are hundreds of starfish. How many can you help? What difference does it make?" This man did not reply, took two more steps, picked up another one, threw it into the water, and said, "It makes a difference to this one." What difference are we making? Big or small, it does not matter. If everyone made a small difference, we'd end up with a big difference, wouldn't we?

**Ask** 

- What did you learn from this story?

**Activity** **What Motivates You?**

- This is an individual activity.
- It is an exercise given in the Participant Handbook.

**Do** 

- Ask the class to open their Participant Handbook and complete the exercise given in the section What Motivates You?
- Ensure that the participants have opened the correct page for the activity.
- Give the class 5 minutes to complete the activity.

**Say** 

- Discuss the concept of attitude and how to cultivate a positive attitude as discussed in the Participant Handbook.

**Summarize** 

- Close the discussion by summarizing how self-analysis, knowledge about what motivates you and your positive attitude can help in your business as well in life.

## UNIT 10.1.4: Honesty & Work Ethics

### Unit Objectives

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

- Discuss the qualities of honest people
- Describe the importance of honesty in entrepreneurs
- Discuss the elements of a strong work ethic
- Discuss how to foster a good work ethic

### Resources to be Used

- Participant Handbook

### Ask

- What do you understand by honesty?
- Why is it important for entrepreneurs to be honest?
- Do you remember any incident where your honesty helped you in gaining confidence?
- Do you remember any incident where someone lost business due to dishonesty?

### Say

- Talk about honesty, qualities of an honest person, and the importance of honesty in entrepreneurs as discussed in the Participant Handbook.
- "Let's understand it better with the help of some case scenarios. You will be given some cases within your groups. You have to analyse the case scenario that has been given to you and then find an appropriate solution to the problem.
- Keep your discussion focussed around the following:
  - What went wrong?
  - Who was at fault?
  - Whom did it impact- the customer or the businessman?
  - How would it impact the business immediately? What would be the long term impact?
  - What could be done?
  - What did you learn from the exercise?

### Do

- Divide the class into four groups of maximum six participants depending on the batch size.
- Give one case study to each group.
- Instruct them to read the case carefully.
- Put down the de-brief questions on the board and ask the groups to focus their discussion around these questions.
- The group is expected to analyse and discuss the case amongst them and find a solution to the given problem. Give the class 5-10 minutes to discuss the case and note down their solutions.
- At the end of 10 minutes the team should present their case solution to the class. The presentation can be a narration or a role play.
- Ask the group to select a group leader for their group. The group leader to discuss and assign roles to the group members for the presentation.

## Team Activity

### Case Study Analysis

#### Scenario 1

Aakash has a small mobile retail sales and repair shop in Allahabad. He has one of the most popular outlets and has great rapport with his customers.

It's around 11 AM when a customer barges in to the shop and starts shouting at Aakash for giving her a faulty instrument. The screen of her mobile is cracked from one side. Aakash remembered thoroughly checking the handset before handing it over to the customer. The customer threatens to sue him and to go to Consumer Court for cheating her. Now, the problem occurred somewhere outside the shop but as other customers were listening to the conversation, it might impact his business. The situation needs to be managed very sensitively. What would you do if you were in Aakash's place?

#### Scenario 2

Rajni does beautiful Phulkari embroidery on suits and sarees. She has a small home-based business. She has a huge list of customers on Facebook and WhatsApp who give her orders regularly. Smita is one of her old and regular customers. As her sister-in-law's wedding was around the corner, Smita wanted to buy few handcrafted Phulkari duppatta. She placed an order for three duppattas via WhatsApp and requested Rajni to send them as soon as possible. When the parcel reached Smita through courier she found that out of the three duppattas, only one was hand embroidered and the other two had machine embroidery on them. Even the length and the quality of the material was not as desired. Smita was heartbroken. It was a complete waste of money and moreover she couldn't wear what she had planned to during the wedding functions. She sent a message to Rajni on WhatsApp, expressing her anger and disappointment.

Smita has also sent a feedback and expressed her disappointment on the social media.. this will directly affect Rajni's business. What would you do if you were in Rajni's place?

#### Scenario 3

Shankar is a tattoo artist who has a small tattoo showroom in a big, reputed mall in New Delhi. Mr Saksham had an appointment for today, at 11:00 am but he reached at 11:50 am. Meanwhile, Shankar had to reschedule his next appointment. After availing Shankar's services, Mr Saksham started yelling in an abusive language, refusing to pay the requisite amount, and finding faults in the services provided by him. Who was at fault in this case? What should Shankar do? Should he confront Saksham or give in to the demands of the client?

#### Scenario 4

Shallender is an online cloth reseller who does business through social networking sites such as Facebook and WhatsApp. Priyanka made online payment for a dress to Shallender. But she did not receive the dress for a month. When she asked for a cancellation, Shallender started misleading her. For almost 45 days, he kept promising her that he will pay the amount today, tomorrow, day after etc. Even after repeated calls and messages when she did not receive the payment or the dress, she decided to write a post against him on a popular social media platform. As a result, Shallender lost lots of customers and his flourishing business faced a major crisis. How could this situation have been managed?

## Say

- Now, let's discuss the problem and solution with the larger group.
- The group will first briefly describe the case to the class.
- Then discuss the issue identified and the proposed solution.
- Once the presentation is over, the class can ask their questions.

**Do** 

- Congratulate each group for the group presentation.
- Ask the audience to applaud for them.
- Ask de-brief questions to cull out the information from each group.
- Keep a check on time. Tell the group to wind up the discussion quickly if they go beyond the given time limit.

**Summarize** 

- Ask the participants what they have learnt from the exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the importance of honesty and work ethics for entrepreneurs.

## UNIT 10.1.5: Creativity and Innovation

### Unit Objectives

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

- List the characteristics of highly creative people
- List the characteristics of highly innovative people

### Resources to be Used

- Participant Handbook
- Chart papers
- Marker pens

### Ask

- You must be aware of the term 'Rags to riches' and heard stories related to the term.
- What do these stories tell us?
- What was so special about these people?

### Say

- Let's have a look at these stories.
- There are some inspiring stories about people which I would like to share with you.
- Narrate these stories to the class.

#### A.R.J. Abdul Kalam

Who has not heard of A.R.J. Abdul Kalam: Avul Pakir Jainulabdeen Abdul Kalam hailed from a very humble background. His father was a boat owner. To help his family, Kalam would work as a newspaper vendor. With limited resources, he graduated in Physics and studied aerospace engineering. He was instrumental in India's step towards nuclear energy. In 2002, he became the 11th President of India.

#### Water filter/purifier at source

Two young boys studying in classes 4 and 5, from Lingzya Junior High School, Siddim designed a simple innovative low cost water purifier.

Inspiration behind the idea: Most people today prefer to use a water filter/purifier at their home.

Both the children have given idea to have filter/purifier at the source of water so that everyone has access to clean water without having to make an investment in purchasing a filter/purifier.

Spring's idea is to have a centralised purification system at the point of distribution like water tank while Subash's idea is to have such purifiers attached to public taps.

Source: <http://www.rediff.com/getahead/report/achievers-top-31-amazing-innovations-from-young-indians/20151208.htm>

#### Solar seeder

This is a story of a innovative solar seeder and developed by Subash Chandra Bose, a class 8, student from St Sebastiyar Matriculation School, Pudukkottai, Tamil Nadu. Subash has developed a solar powered seed drill, which can undertake plantation for different size of seeds at variable depth and space between two seeds.

Source: <http://www.rediff.com/getahead/report/achievers-top-31-amazing-innovations-from-young-indians/20151208.htm>

**Looms for physically challenged**

Now this is really inspiring of two sisters, Elakkiya a Class 6 student and Pavithra a Class 9 student of SRC Memorial Matriculation, Erode, Tamil Nadu.

The two sisters have come up with loom for lower limbed physically challenged. In their loom they have replaced the pedal operated system with a motor and a gearbox attached to a pulley mechanism.

Source: <http://www.rediff.com/getahead/report/achievers-top-31-amazing-innovations-from-young-Indians/20151208.htm>

**Ask** 

- If they can, why can't you?
- Discuss concepts related to 'Creativity and Innovation' with the participants as given in the Participant Handbook.

**Say** 

- Recall the stories on motivation.
- What is the inner drive that motivates people to succeed?
- Let's learn more about such creative and innovative entrepreneurs with the help of an activity.

**Team Activity** 

- This is a group activity.

- Think of any one famous entrepreneur and write a few lines about him or her.

**Activity De-brief**

- Why did you choose this particular entrepreneur?
- What is his/her brand name?
- What creativity does he/she possess?
- What was innovative about their ideas?

**Do** 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4 or 6 depending on the batch size.
- Give each group a chart paper.
- Tell the participants they have to write a few lines about any one famous entrepreneur.
- Give the participants 10 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.
- Ask each group to read out what they have written.
- Ask the de-brief questions.

## Summarize



- Summarize the unit by asking participants if they know of some people who are highly creative and innovative in their approach.
- Ask them to share some experiences about these people with the class.

## Notes for Facilitation



- Source for stories on innovations:

<http://www.rediff.com/getahead/report/achievers-top-31-amazing-innovations-from-young-Indians/20151208.htm>

## UNIT 10.1.6: Time Management

### Unit Objectives

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

- Discuss the benefits of time management
- List the traits of effective time managers
- Describe effective time management techniques

### Resources to be Used

- Participant Handbook

### Ask

Does this sound like you?

- I can never get enough time to finish what I am doing in a day.
- I have so many things to do that I get confused.
- I want to go for a walk and exercise, but I just do not have the time.
- I had so much to do, so I could not deliver that order on time.
- I would love to start my dream business; but, I just do not have the time.

### Example

- Let's look at these two examples:

#### Example 1:

Ankita works from home as a freelance writer. She says she can easily put in 8 hours of dedicated work in a day. Because she works from home, she saves money on travel and has a comfortable work routine. But there is a challenge and it is distraction. As she works from home, she can easily just get up and sit down on the sofa to watch TV, wasting valuable time. She may have chores to do, errands to run and bills to pay. She ends up working only two to three hours a day and the result is, her work gets piled up. She is unable to take on more work due to this. Even though her quality of work is appreciated her clients are not very happy about the delay in submission.

#### Example 2:

Javed has started a successful online selling company from home and makes a good living from his sales. He has set up a small office space in his living room. As both his parents are working full-time, he also has the role of taking care of his two younger siblings. He almost spends half of his day with the younger kids. He does not mind it but it means taking time away from the work. He is still able to manage his online business with these commitments. He wants to spend some more dedicated hours so as to increase his profits. He also wants to look into new business avenues. What should he be doing.

### Ask

- Does this happen with you too?
- Do you find it difficult to prioritize your work?
- Are you able to manage your time effectively?

## Activity

- Conduct a group discussion based on the above examples.
- Direct the discussion on how to prioritize work and manage time effectively.

## Say

- Time management is not only about how hard you work but also about how smart you work.
- Discuss "What is Time Management" with the participants as given in the Participant Handbook.

## Ask

- Why is it important to manage time? How does it help?
- What happens when you don't manage your time effectively?
- Do you find it difficult to prioritize your work?

## Say

- Discuss the benefits of time management given in the Participant Handbook.
- Let's learn effective time management with the help of an activity.

## Activity

### Effective Time Management

- This activity has two parts:

#### PART 1 TO-DO LIST

- You have to make a to-do list.
- List all of the activities/ tasks that you have to do.
- Try to include everything that takes up your time, however unimportant it may be.
- If they are large tasks, break them into action steps, and write this down with the larger task.
- You can make one list for all your tasks or have separate to-do lists for personal and professional tasks.

#### PART 2 URGENT-IMPORTANT GRID

- You have to make a grid as shown on the board here. .
- This grid has four boxes. As you can see, each box has a different heading.
- At the heart of the urgent-important grid, are these two questions:
  - Is this task important?
  - Is this task urgent?
- Now, you have to think about each activity that you have written in your to-do list and put it into one of the four categories.
- What do these categories depict?
- Category 1: Urgent/important
  - This category is for the highest priority tasks. They need to get done now.

- **Category 2: Not Urgent/Important**
  - This is where you want to spend most of your time.
  - This category allows you to work on something important and have the time to do it properly.
  - This will help you produce high quality work in an efficient manner.
  - The tasks in this category are probably the most neglected ones, but also the most crucial ones for success.
  - The tasks in this category can include strategic thinking, deciding on goals or general direction and planning—all vital parts of running a successful business.
- **Category 3: Urgent/Not Important**
  - This is where you are busy but not productive. These tasks are often mistaken to be important, when they're most often busywork.
  - Urgent but not important tasks are things that prevent you from achieving your goals.
  - However, some may be activities that other people want you to do.
- **Category 4: Not Important and Not Urgent**
  - This category doesn't really include tasks, but rather habits that provide comfort, and a refuge from being disciplined and rigorous with your time management.
  - Some may be activities that other people want you to do.
  - These might include unplanned leisure activities as well.

#### TO- DO list format

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	
13.	
14.	
15.	

**URGENT-IMPORTANT GRID**

<p><b>URGENT/ IMPORTANT</b></p> <ul style="list-style-type: none"> <li>• Meetings</li> <li>• Last minute demands</li> <li>• Project deadlines</li> <li>• Crisis</li> </ul>	<p><b>NOT URGENT/ IMPORTANT</b></p> <ul style="list-style-type: none"> <li>• Planning</li> <li>• Working towards goals</li> <li>• Building relationship</li> <li>• Personal commitments</li> </ul>
<ul style="list-style-type: none"> <li>• Interruptions</li> <li>• Phone calls/ E-mails</li> <li>• Other people's minor demands</li> </ul> <p><b>URGENT/ NOT IMPORTANT</b></p>	<ul style="list-style-type: none"> <li>• Internet surfing</li> <li>• Social media</li> <li>• Watching TV</li> </ul> <p><b>NOT URGENT/ NOT IMPORTANT</b></p>



**URGENT/ IMPORTANT GRID format**

<p><b>URGENT/ IMPORTANT</b></p>	<p><b>NOT URGENT/ IMPORTANT</b></p>
<p><b>URGENT/ NOT IMPORTANT</b></p>	<p><b>NOT URGENT/ NOT IMPORTANT</b></p>



## Do

- Put down the formats for the to-do list and the urgent/important grid on the board.
- Instruct the participants to prepare their to-do list first.
- Give the participants 10 minutes to prepare the list.
- Once done, instruct them to divide the tasks in to-do list into the four categories.
- Explain the four categories to the participants giving examples specific to their context.
- As you explain the categories fill the grid with the type of tasks.
- Give the participants 40 minutes to fill the grid.
- Then explain how to balance the tasks between the four categories.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

## Say

### Activity De-brief:

**How can we balance tasks between the four categories?**

**How to manage time through this grid?**

- **Category 1: Urgent/Important**
  - Try to keep a few tasks as possible here, with the aim to eliminate.
  - If you spend too much of your time in this category, you are working solely as a trouble shooter, and never finding time to work on longer-term plans.
- **Category 2: Not Urgent/Important**
  - Plan these tasks carefully and efficiently as they are most crucial ones for success.
  - If necessary, also plan where you will do these tasks, so that you're free from interruptions.
  - Include strategic thinking, deciding on goals or general direction and planning in your planning process.
- **Category 3: Urgent/Not Important**
  - Ask yourself whether you can reschedule or delegate them.
  - A common source of such activities is other people. Sometimes it's appropriate to say "no" to people politely, or to encourage them to solve the problem themselves.
- **Category 4: Not Important and Not Urgent**
  - You also want to minimize the tasks that you have in this category.
  - These activities are just a distraction—avoid them if possible.
  - You can simply ignore or cancel many of them.
  - Politely say "no" to work assigned by others, if you can, and explain why you cannot do it.
  - Schedule your leisure activities carefully so that they don't have an impact on other important tasks.
- Discuss the traits of effective time managers and effective time management techniques as given in the Participant Handbook.

## Summarize

- Discuss the traits of effective time managers and effective time management techniques as given in the Participant Handbook.

## Notes for Facilitation



- Here is a short story. You can conclude the session narrating the story. To make it more interesting you can perform the demonstration described and discuss the short story.
  - One day an expert in time management was speaking to a group of students. As he stood in front of the group, he pulled out a large wide-mouthed glass jar and set it on the table in front of him. Then he took out a bag of about a dozen rocks and placed them, one at a time, into the jar. When the jar was filled to the top and no more rocks would fit inside, he asked, "Is this jar full?" Everyone in the class said, "yes." Then he said, "Really?"
  - He reached under the table and pulled out a bucket of gravel (small stones). He dumped some gravel in and shook the jar causing pieces of gravel to work themselves down into the space between the rocks. Then he asked the group once more, "Is the jar full?" By this time, the class began to understand. "Probably not," one of them answered. "Good!" he replied.
  - He reached under the table and brought out a bucket of sand. He started dumping the sand in the jar and it went into all of the spaces left between the rocks and the gravel. Once more he asked the question, "Is this jar full?" "No!" the class shouted. Once again he said, "Good." Then he grabbed a jug of water and began to pour it in until the jar was filled to the brim. Then he looked at the class and asked, "What is the point of this illustration?" One student raised his hand and said, "No matter how full your schedule is, if you try really hard you can always fit some more things in it!" "No," the speaker replied, "that's not the point. The truth this illustration teaches us is: if you don't put the big rocks in first, you'll never get them in at all." What are the 'big rocks' in your life? Your children; your loved ones; your education; your dreams; a worthy cause; teaching or mentoring others; doing things that you love; time for yourself; your health; your mate (or significant other). Remember to put these BIG ROCKS in first or you'll never get them in at all. If you sweat about the little stuff (the gravel, sand, and water) then you'll fill your life with little things you worry about that don't really matter, and you'll never have the time you need to spend on the big, important stuff (the big rocks).
- End the story with these lines..
 

So, tonight, or in the morning tomorrow, when you are reflecting on this short story, ask yourself this question: What are the 'big rocks' in my life? Then, put those in your jar first

## UNIT 10.1.7: Anger Management

### Unit Objectives

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

- Discuss the Importance of anger management
- Describe anger management strategies
- Discuss tips for anger management

### Resources to be Used

- Participant Handbook

### Ask

- What is anger? Is anger good or bad?
- Is anger normal or an abnormal behaviour? How can anger harm you?
- Why is it important for entrepreneurs to manage their anger?

### Say

- Talk about anger and the importance of anger management in entrepreneurs as discussed in the Participant Handbook.
- Let us do a small activity. This is an individual activity.
- Think of the incidents and situations that angered you and hurt you.

### Do

- Instruct them to note down these situations under different categories (as given in the Activity).
- Give the class 3-5 minutes to think and note down their answers.
- At the end of 5 minutes, ask some participants to volunteer and present their answers.
- They can also share these situations with their fellow participants if they do not wish to share it with the entire class.

### Activity

- Do you remember any incident which has hurt
  - you physically
  - you mentally
  - your career
  - your relationships.

### Ask

- Do you ever get angry?
- What are the things that make you angry?
- Do you remember any incident where your anger management helped you in maintaining healthy relationship?
- Do you remember any incident where someone lost business/ friend/ relationship due to temper (anger)?

## Say

- There are a few strategies which can help in controlling your anger. Let's do an activity to understand the anger management process better.
- This is an individual activity.
- Think of the incidents/situations which trigger your anger (the cause).
- Then think what happened as a result of your anger (the effect).
- You need to come up with some techniques to manage your anger.

## Do

- Give the class the anger triggers (the cause) as listed in the activity.
- Put down the activity format (Anger Triggers, Result of your Anger, Anger Management Techniques) on the board and instruct the class to write the answers under different categories.
- Give the class 3-5 minutes to think and note down their answers.
- At the end of 5 minutes, ask the participants who wish to volunteer and present their answers.

## Activity

### Trigger points and Anger Management Techniques Activity

#### Anger Triggers

List of triggers that make you angry:

Someone says you did something wrong.

You want something you can't have now.

You get caught doing something you shouldn't have been doing.

You are accused of doing something you didn't do.

You are told that you can't do something.

Someone doesn't agree with you.

Someone doesn't do what you tell him to do.

Someone unexpected happens that messes up your schedule.

Result of your anger:

Write the techniques that you use to manage your anger:

### Anger Management Techniques

## Say

- Now, let's discuss the problems and solution with all.
- The individual will first briefly describe trigger points to the class.
- Then discuss the result of the anger. Other participants are requested to remain quiet while one is making the presentation.
- Post presentation, other participants may ask questions.

## Do

- Congratulate each individual for sharing their points.
- Ask the audience to applaud for them.
- Ask de-brief questions after the presentation to the class.
- Keep a check on the time. Ask the participants to wind up the activity quickly if they go beyond the given time limit.

## Ask

De-brief questions:

- In the situation described by the presenter, who was at fault?
- How could you have handled this situation alternatively?

## Summarize

- Close the discussion by summarizing the strategies and tips of anger management for entrepreneurs.
- Ask the participants what have they learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.

## Notes for Facilitation

- Encourage the participants to share information about them while presenting the situations to the class.
- Keep the format of the Activity prepared in a chart paper so that it can be displayed during the session.

## UNIT 10.1.8: Stress Management: What is stress?

### Unit Objectives

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

- Discuss the causes of stress
- Discuss the symptoms of stress
- Discuss tips for stress management

### Resources to be Used

- Participant Handbook

### Ask

- You are waiting in the reception for an interview or a very important meeting, suddenly your legs are shaky, your hands are cold, you are feeling nervous. Have you ever been in this kind of situation?
- Have you had days when you had trouble sleeping?
- Have you ever been so worried about something that you ended up with a terrible headache?

### Say

- You've probably heard people say, "I'm really stressed out" or "This is making me totally stressed."

### Ask

- What do you understand by stress?
- What gives you stress?
- How do you feel when you are stressed or what are the symptoms of stress?
- How can stress harm you?
- Why is it important for entrepreneurs to manage stress?

### Say

- When we feel overloaded or unsure of our ability to deal with certain challenges, we feel stressed.
- Discuss about stress, causes of stress, and symptoms of stress as discussed in the Participant Handbook.
- Let's understand the causes of stress and how to deal with them with the help of some case scenarios.
- You will be given some cases.
- You have to analyse the case scenario and then find an appropriate solution to the problem.
- This will be a group activity.

### Do

- Divide the class into four groups of 5-6 participants (depending on the batch size).
- Assign one case scenario to each group.
- Instruct them to read the case carefully.
- The group is expected to analyse and discuss the case amongst them and find a solution to the given problem.
- Explain their discussions should result in getting answers for the following questions:

- What was/were the cause(s) of stress?
  - Was the stress avoidable or manageable under the given circumstances?
  - If yes, how do you think that the stress could be avoided (managed)?
  - If no, then why not?
- Give the class 10-12 minutes to discuss the case and note down their solutions.
  - At the end of 12 minutes, the team should present their case solution to the larger group.
  - Ask the group to select a group leader for their group.
  - The group leader to discuss and assign roles to the group members for the presentation.

## Team Activity

### Case Study Analysis

#### Scenario 1

Akash's alarm doesn't go off and he gets late getting out of the house. He hits traffic and ends up 15 minutes late to work, which his boss notices. He gets to his desk and finds he has to complete 2 reports in next one hour. Just when he is about to begin work, a message pops up "Telecon with the client begins in 10 minutes. Please be in the conference room in 5 minutes."

He is not prepared for the call. He is stressed. He does not want to speak to his boss about this. He is stressed, feeling uncomfortable and sick. Not in a position to attend the call or finish the reports on time.

#### Scenario 2

While paying his overdue bills, Rahul realised that it's the middle of the month and he has only Rs 500 left in his account. He has already asked all of his friends, and family for loans, which he hasn't paid back yet. He is still contemplating over the issue when his phone rings. His sister's birthday is due next week and she has seen a beautiful dress which she wants to buy but cannot tell the parents as it is a bit expensive. She wishes if Rahul could buy the dress for her. Rahul has promised to buy her the dress for her birthday.

Rahul is stressed, does not understand what to do. He is unable to concentrate on his work and unable to complete the tasks assigned. His team leader has already warned him of the delay.

#### Scenario 3

Sheela calls the cable company as she has unknown charges on her bill. She has to go through the automated voice mail menu three times and still can't get through to a customer care executive. After 15 minutes of repeated efforts, her call is answered. She explains the entire issue to the customer care executive but before the person could suggest a way out, the call drops.

Now Sheela has to call back and repeat the whole process all over again with a new customer care executive. She is very angry and calls again but cannot connect this time.

She has to leave to office so she decides to call from office and check. When she connects this time she is angry and argues with the executive on the call. All her co-workers around are looking at her as her volume has suddenly increased. She bangs the phone and ends the call.

Her co-worker Neelam enquires what has happened to her. She ignores her and just walks off. She has become irritable and her behaviour and tone with other co-workers is not acceptable.

**Scenario 4**

Arpit is a young entrepreneur who started doing business through Facebook few weeks back. He had always been into a job. Although Arpit has very few financial liabilities, it wasn't an easy decision to leave a comfortable job at once and look for newer pastures. Arpit's boss warned him of the consequences and the challenges of starting a business when nobody ever in his family had been in business.

He has not been able to get a good deal till now. This is an important life shift for him which comes with unknown variables. Arpit is nervous and is wondering if he has what it takes to fulfill the requirement of his new role, or the new experiences he's likely to face.

**Ask** **De-brief questions:**

- What was/ were the cause(s) of stress?
- Was the stress avoidable or manageable under the given circumstances?
- If yes, how do you think that the stress could be avoided (managed)?
- If no, then why not?

**Say** 

- Now, let's discuss the problem and solution with the larger group.
- The group will first briefly describe the case to the class.
- Then discuss the issue identified and the proposed solution.
- Post presentation, the other groups may ask questions to the group that has presented.

**Do** 

- Congratulate each group for sharing their points.
- Ask the audience to applaud for them.
- Ask de-brief questions to cull out the information from each group.
- Keep a check on time. Tell participants to wind up the discussion quickly if they go beyond the given time limit.

**Say** 

- While it is common and normal to feel some tension. This feeling nervous and tensed can interfere with your thinking process and can have a negative impact on your performance.
- Stress can deplete the most vibrant of souls. It can have a negative effect on every aspect of a person's life including their health, emotional well-being, relationships, and career. However, one needs to understand the causes and types of stress before looking for ways to manage it.

**De-brief:****Scenario 1**

The cause of stress was lack of time management and the habit of procrastinating. If Akash would have managed his time well, planned alternate ways to get up on time, finished prior tasks on time and planned for client meetings in advance then he wouldn't have faced stress.

**Scenario 2**

The cause of stress was lack of financial planning. Rahul should have planned his financial resources well in advance and saved some money for the rainy day. Also, differentiating between needs and wants and keeping a check on non-essential expenditure would have saved Rahul from this situation.

**Scenario 3**

Sometimes, stress is caused due to external factors instead of internal ones. In this case, the stress was unavoidable because we have no control over this customer care system. Every time, you will get in touch with a new executive and will have to explain all over again. This might cause stress but despite being frustrated and angry there is little that we can do about it. All Sheila could do was to find ways to calm herself down through some breathing exercises and meditation, reading some good book or listening to music and then start afresh.

**Scenario 4**

A positive, major life change can be a source of good stress. Regardless of how good the change is, it can be stressful. Stress caused by a positive and major life change can be beneficial because it causes a person to step out of their comfort zone and learn new skills. Here, Arpit may become a successful entrepreneur or learn new ways to do things differently.

Now let us see this scenario, can I have a volunteer to read out this case to the class.

**Do** 

- Ask one of the participant who can volunteer and read out this scenario to the class.

**Scenario 5**

Rakesh lives in Kathmandu with his wife and two beautiful daughters Sarah and Sanya. Nepal was hit by a massive earthquake and Rakesh's building collapsed during the earthquake. During evacuation, Rakesh realised that though his wife and Sarah were fine and suffered only minor bruises, Sanya was nowhere in the scene. Panic stricken, he started calling her name and searching her frantically. A little later, he heard a meek voice from beneath the debris. He quickly removed the rubble to find a huge bed. Rakesh was pretty sure that Sanya was trapped underneath. Though he was badly bruised, he gathered all his courage and with all his might, he lifted the several-ton bed to save Sanya's life. Everyone was relieved to see Sanya alive and also extremely surprised to see this father's ability to access superhuman strength.

- Ask the audience to applaud for the participant after the scenario is read completely.
- Discuss the scenario, ask de-brief questions:
  - What kind of stress was Rakesh undergoing in this case?
  - Was the stress avoidable or manageable under the given circumstances?
  - What was the result of the stress?

**Say** **De-brief:**

- Not all stress is harmful; good stress is actually energizing. This was a case of life-saving stress, or hero stress, which is an important example of good stress. You may have heard stories in which a person performs an impossible feat of physical strength in order to save their life or the life of someone they love. This type of stress causing a surge of adrenaline is good for us.

## Summarize

- Close the discussion by summarizing the tips to manage stress as given in the Participant Handbook.
- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.

## Notes for Facilitation

- Keep printed copies of the activities/ scenarios ready for the session.
- Put down the de-brief questions on a flip chart so that it can be displayed in the class during the activity.
- Encourage participation and make the discussions interactive.





## UNIT 10.2: Digital Literacy: A Recap

### Key Learning Outcomes



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

1. Identify the basic parts of a computer
2. Identify the basic parts of a keyboard
3. Recall basic computer terminology
4. Recall the functions of basic computer keys
5. Discuss the main applications of MS Office
6. Discuss the benefits of Microsoft Outlook
7. Identify different types of e-commerce
8. List the benefits of e-commerce for retailers and customers
9. Discuss Digital India campaign will help boost e-commerce in India
10. Describe how you will sell a product or service on an e-commerce platform

## UNIT 10.2.1: Computer and Internet Basics: Basic Parts of a Computer

### Unit Objectives

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

- Identify the basic parts of a computer
- Identify the basic parts of a keyboard
- Recall basic computer terminology
- Recall the functions of basic computer keys

### Resources to be Used

- Participant Handbook
- Computer Systems with the required applications

### Say

- Let's take a quick recap of the basic computer parts.
- Discuss 'Basic Parts of Computer' and 'Basic Parts of a Keyboard' with the class as given in the Participant Handbook.

### Explain

- Explain all the parts of the computer and the keyboard by demonstrating on the real system.

### Ask

- Do you know about Internet?
- Have you ever used Internet?
- Why do you think Internet is useful?
- What was the last task you performed on Internet?

### Say

- Let's look at some basic Internet terms.
- Discuss 'Basic Internet Terms' with the participants as given in the Participant Handbook.

### Summarize

- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the importance of computer and Internet for entrepreneurs.

## Practical

- Conduct a practical session.
- Ask the participants to assemble in the computer lab.
- Give some hands on practice exercises.

## Do

- Group the participants for the activity depending on the batch size and the number of computer systems available in the lab.
- Explain the purpose and duration of the activity.
- Ensure the participants complete the practical exercises assigned.

## UNIT 10.2.2: MS Office and Email: About MS Office

### Unit Objectives

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

- Discuss the main applications of MS Office
- Discuss the benefits of Microsoft Outlook

### Resources to be Used

- Participant Handbook
- Computer Systems with MS Office

### Ask

- What is the most frequent activity that you do on the computer?
- Do you know how to make presentations on the computer?

### Say

- Give a brief introduction of MS Office as given in the Participant Handbook.
- Discuss the most popular office products. Explain in brief their application, benefits and working.
- Microsoft Word is a word processing program that allows for the creation of documents. The program is equipped with templates for quick formatting. There are also features that allow you to add graphics, tables, etc.
- Microsoft Excel is a tool for accounting and managing large sets of data. It can also simplify analysing data. It is also used to create charts based from data, and perform complex calculations. A Cell is an individual data box which will have a corresponding Column and Row heading. This gives the cell a name, referred to as the Cell Reference. There can be multiple pages in each workbook. Each page, or sheet, is called a Worksheet. When you open a new Excel file, it automatically starts you with three worksheets, but you can add more.

### Explain

- Explain the working and frequently used features of Office on a real system.

### Ask

- What do you know about e-mails?
- Do you have an email id?
- How often do you check your e-mails?

### Say

- Communication is vital for every business. The fastest and the safest way to communicate these days are through emails. MS Outlook helps to manage your emails in a better way and also offers a host of other benefits.
- Discuss "Why Choose Microsoft Outlook?" with the participants as given in the Participant Handbook.

**Do** 

- Ask the participants to assemble in the computer lab.
- Explain the working of Outlook on a real system.

**Demonstrate** 

- Demonstrate how to create email id.
- Demonstrate how to write new mails, send mails.
- Demonstrate how to use MS Office application to create a letter and send it as attachment in an email.
- Demonstrate how to use other MS Office applications.

**Practical** 

- Give some hands on practice exercises
- Group the participants for the activity depending on the batch size and the number of computer systems available in the lab.
- Explain the purpose and duration of the activity.

**Summarize** 

- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.

## UNIT 10.2.3: E-Commerce

### Unit Objectives

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

- Identify different types of e-commerce
- List the benefits of e-commerce for retailers and customers
- Discuss Digital India campaign will help boost e-commerce in India
- Describe how you will sell a product or service on an e-commerce platform

### Resources to be Used

- Computer System with Internet connection
- Participant Handbook

### Ask

- How many of you have done shopping online?
- Can you name at least five shopping websites?
- What is the product that you most frequently buy online?
- Why do you do shopping online instead of going to the market?

### Say

- Give a brief introduction of "What is E-commerce". Refer to the Participant Handbook.
- E-commerce emerged in the early 1990s, and its use has increased at a rapid rate. Today, many companies sell their products online. Everything from food, clothes, entertainment, furniture and many other items can be purchased online.

### Ask

- What other types of transactions have you performed on the internet other than buying products?

### Say

- Give examples of e-commerce activities from Participant Handbook.

### Team Activity

#### E-commerce examples

- Instruct the participants to list some of the payment gateways that they have used for e-commerce activities.
- Give them 5 minutes to make this list.
- Discuss payment gateways and transaction through payment gateways.
- Conclude the discussion by mentioning how important e-commerce has become in our day to day transactions.

**Say** 

- E-commerce activities can be classified based on the types of participants in the transaction.
- Discuss "Types of E-commerce" from the Participant Handbook.

**Do** 

- Discuss all types of E-commerce by giving examples and names of some popular websites which use them.
- Make the discussion interactive by asking the class to share some popular e-commerce sites of each type.

**Say** 

- E-commerce activities bring a host of benefits for both, retailers and customers.
- Discuss benefits of E-commerce from the Participant Handbook.

**Explain** 

- The majority of the population that uses E-commerce activities lives in tier-1 and tier-2 cities. To encourage the use of digital money in tier-3 and 4 areas, PM Mr. Modi launched the "Digital India Campaign".
- Discuss "Digital India Campaign" from the Participant Handbook.
- By Digital India project the government will deliver services via mobile connectivity and in doing so, is expected to bring the Internet and broadband to remote corners of the country. This connectivity will in turn enhance e-commerce activities also. Furthermore, the Indian Government is also modernizing India Post and aims to develop it as a distribution channel for e-commerce related services.

**Say** 

- Now let us discuss how to sell a product using E-commerce.
- Every product has to be sold on a platform on the Internet. Think of it as a shop that you have to sell your product. Now this shop can be your own or shared or rented. If the shop is your own or rented there will be only your products in that shop. If the shop is shared, there will be products of multiple sellers in that shop. A common example is a departmental store which has products from multiple brands in the shop.
- Similarly, in E-commerce the shop is the website where your products are displayed. If it is your own website it will exclusively showcase your products. In this case the cost that you will incur will be:
  - Developing the website
  - Hosting the website
  - Maintenance of the website
- If you rent a website it will also showcase your own products but the development, hosting and maintenance parts go to the owner. This saves time and the cost to manage these activities.
- Smaller companies usually go for renting a website and the bigger ones develop their own website.
- The concept of shared platforms has become very popular in recent times. In this platform the sellers have to register and then they can sell their goods on a common platform. Among the most popular of these are Amazon, Myntra, Flipkart, etc.

**Role Play** 

- Tell the participants to choose a product or service that they want to sell online.
- Tell them to write a brief note explaining how they will use existing e-commerce platforms, or create a new e-commerce platform to sell their product or service.

**Ask** 

- How much money are you carrying in your wallet?
- Do you have a credit/debit card?
- How do you make payments while doing online shopping?

**Say** 

- Demonetization has made carrying cash in the wallet very difficult. People either shop through cards or some other form of digital money.
- So what do you think is digital money?
- In this form the money is both paid and received digitally. There is no hard cash involved. It is an instant and convenient way to make payments.
- There are various types of digital payments. Let us discuss some of them in brief here.
- The first one is the most commonly used system i.e. the cards. Debit card, credit card, prepaid card, all fall under this category.
- Then is the e-wallet or the mobile wallet. This has become the most used form of digital money after demonetization. Examples are Paytm, statebank buddy, Freecharge, etc.
- Many other forms of digital money are also coming up in market like mobile apps, Aachar card based payment, etc.

**Do** 

- Demonstrate how to make and receive payments through digital models like Paytm and state bank buddy.

**Ask** 

- Why do you think people have started using digital money instead of hard cash? Is demonetization the only reason?

**Say** 

- Digital money gives a lot of advantages over the conventional hard cash. Some of them are:
  - Digital payments are easy and convenient. You do not need to take loads of cash with you, a mobile phone or a card will suffice.
  - With digital payment modes, you can pay from anywhere anytime.
  - Digital payments have less risk.

**Summarize** 

- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the importance of e-commerce and digital money.





## UNIT 10.3: Money Matters

### Key Learning Outcomes

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

1. Discuss the importance of saving money
2. Discuss the benefits of saving money
3. Discuss the main types of bank accounts
4. Describe the process of opening a bank account
5. Differentiate between fixed and variable costs
6. Describe the main types of investment options
7. Describe the different types of insurance products
8. Describe the different types of taxes
9. Discuss the uses of online banking
10. Discuss the main types of electronic funds transfer

## UNIT 10.3.1: Personal Finance – Why to Save?

### Unit Objectives

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

- Discuss the Importance of saving money
- Discuss the benefits of saving money

### Resources to be Used

- Participant Handbook

### Ask

- How many of you save money?
- Why do you feel the need to save it?
- Do you plan your savings?
- Where do you keep the money you save?
- How do you use the money that you have saved?

### Example

- Let's look at these two examples:

#### Example 1:

Suhani works in a good company and earns Rs.30,000 month. She always saves 5000 per month and keeps it aside as a personal saving. She keeps the money at home and has saved quite a lot. One day her mother has a medical emergency and has to be taken to the hospital. Her family is worried about the amount they have to spend for the treatment. It will cost them atleast 40,000.

Suhani says tells her family not to worry and that she has about 50,000, which she has saved over the months.

#### Example 2:

Jasmeet works in the same company and earns the same as Suhani. She is very fond of shopping and spends most of her money on buying new clothes. At the end of the month, she is always asking her father for money as her pay is finished.

### Ask

- Who do you identify with—Suhani or Jasmeet ?
- How do you think Suhani manages to save money which Jasmeet is unable to do?

### Say

- We should always set aside some and save some money from our monthly pay. The future is unpredictable. Saving money not only gives you a sense of financial security but it can be used in case of emergencies.
- Discuss "Importance of Saving" with the participants as given in the Participant Handbook.

### Ask

- What are the benefits of saving money?
- What does being financially independent mean to you?

**Say** 

- Discuss "Benefits of Saving" with the participants as given in the Participant Handbook.
- Now let us continue with Suhani's story. Suhani has told her family not to worry and that she has about 50,000, which she has saved over the months. The family is happy about Suhani's decision of saving money, which will be of great help for them now.

Suhani is going to the hospital today to pay the first instalment for the treatment. Suddenly finds only 35,000 in her cash box when she counts and does not remember using it. She has not kept any record and now she is upset.

**Ask** 

- Was it a good decision by Suhani to save a part of her earnings every month?
- Was it a wise decision to keep all her savings as cash in a cash box?
- Could she have managed to save money in a better and more effective manner?
- Do you want to learn how to save money and use it effectively?

**Say** 

- Let's learn personal saving with the help of a group activity.

**Team Activity** **Personal Finance- Why to save**

- This activity has two parts:

**PART 1****WAYS TO SAVE MONEY**

- You are earning 30,000/- per month. You have recently changed your job and have to move to a metropolitan city. You are now living as a paying guest paying 10,000/- per month. Your other estimated expenditures like travel, food, recreation would be around Rs. 17,000 per month.
- Make a list of different ways to save money.

**PART 2****HOW WILL YOU USE THE MONEY**

- After a year how much have you been able to save?
- How will you use the money that you have saved?

**Do** 

- Divide the class into groups of four.
- Instruct the participants to think and prepare a list of the various ways they can save money.
- Give the participants 10 minutes to prepare the list.
- Once done, instruct them to think of how they could use the money they have saved.
- Give the participants 10 minutes to prepare the list.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Activity De-brief**

- What were the different ways you could save money?
- How much money were you able to save?
- How will you use the money you have saved in one year?

## Say



- Discuss the importance of personal finance and why it is important to save money.

## Summarize



You can summarize the session by discussing:

- The importance of saving money.
- Ways to save money.
- How the money saved can be used for different purposes.

## UNIT 10.3.2: Types of Bank Accounts, Opening a Bank Account

### Unit Objectives

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

- Discuss the main types of bank accounts
- Describe the process of opening a bank account

### Resources to be Used

- Account opening sample forms
- Participant Handbook

### Ask

- How many of you save money?
- Where do you keep the money you save?
- How many of you have a bank account?
- What type of account do you have?

### Example

- Let's look at the given example:

Reena is in the third year of college but in the evening she gives tuitions for children living in her colony. She earns 15,000/- per month. As her students stay in different parts of the city, she has to walk a lot.

To save time, she decides to buy a second hand scooter for herself. But she has to save money for it. Her class mate advises her to open a recurring deposit account in the bank.

She goes to the bank close to her home. The personal manager gives her some forms to fill. She is confused as she has never done this before. Her elder sister has an account in the same bank. She asks for help from her sister. She goes to the bank the next day with her sister. The personal banker gives her a list of documents that she will need to submit with the form for opening an account. The banker advises her to open a 6 months recurring deposit.

### Ask

- Do you try to save money monthly but have to spend it on unforeseen expenditure?
- Have you ever thought of depositing your savings in a bank?

### Say

- Before opening a bank account, you need to know the types of accounts we have in India.
- Discuss "Types of Bank Accounts" with the participants as given in the Participant Handbook.

### Ask

- Can someone say what are the different types of bank accounts?

**Say** 

- Let's learn about the different types of bank accounts through an activity.

**Team Activity** 

- Divide the class in four groups.
- Label the groups as savings account, current account, recurring account and fixed deposit.
- On a chart paper, ask them to write the key points of their account.

**Activity De-brief**

- Ask each group to present the key points of their account.

**Say** 

- Now that you know about the four different types of accounts, let's learn how to open a bank account.
- Discuss "Opening a Bank Account" with the participants as given in the Participant Handbook.
- Discuss "Tips" that the participants should keep in mind while opening a bank account as given in the Participant Handbook.

**Ask** 

- What are the main documents required for opening a bank account?
- What are some important points to ask the bank personnel while opening an account?

**Say** 

- Mention officially valid KYC documents (refer to the Participant Handbook)
- Now, let's understand the procedure of opening a bank account through an activity.

**Team Activity** **Opening a Bank Account**

- This activity is done in groups.
- Divide the class in groups of four or six.

**PART 1****FILING A BANK ACCOUNT OPENING FORM**

- You have to fill a bank opening form.
- You can refer to the section "Opening a Bank Account" of your Handbook for reference.
- List all the steps that you will be required to fill in the form.
- List the documents that you need for filling the form.
- Now fill in the form.

**Activity De-brief****How did you design the form?**

- What all details did you fill in the form?
- What were your KYC documents?
- How would this activity help you in future?

## Do

- Instruct the participants to read the section "Opening a Bank Account" of the Participant Handbook.
- Give each group one sample account opening form.
- Give the participants 5 minutes to read the form.
- Give them 15 minutes to fill it.
- Assist them by explaining each category and how to fill it.
- Keep a check on time.
- Tell the group to wind up quickly if they go beyond the given time limit.

## Summarize

### Note:

- You can summarize the unit through a role play.
  - A person wanting to open an account in the bank.
  - What is the procedure that he will go through?
  - Discuss the key points of different types of bank accounts.
  - How to select the type of account
  - How to fill the account opening form.
- A sample account opening form is given in the following page for reference. Use it for the activity in the class.

### Sample Bank Account Opening form.

<b>Photograph</b>	XXX Bank		
SAVING BANK ACCOUNT OPENING FORM			
Account No.: _____		Date: _____	
Name of the Branch			
Village/Town			
Sub District / Block Name			
District			
State			
SSA Code / Ward No.			
Village Code / Town Code		Name of Village / Town	
<b>Applicant Details:</b>			
Full Name	Mr./Mrs./Ms.	First	Middle Last Name
Marital Status			
Name of Spouse/Father			
Name of Mother			
Address			
Pin Code			
Tel No. Mobile			Date of Birth
Aadhaar No.			Pan No.
MNREGA Job Card No.			
Occupation/Profession			
Annual Income			
No. of Dependents			

<b>Detail of Assets</b>	Owning House : Y/N	Owning Farm :
	Y/N	
	No. of Animals :	Any other :
<b>Existing Bank A/c. of family members / household</b>	Y / N	If yes, No. of A/cs. _____
<b>Kisan Credit Card</b>	Whether Eligible	Y / N

I request you to issue me a **Rupay Card**.

I also understand that I am eligible for an Overdraft after satisfactory operation of my account after 6 months of opening my account for meeting my emergency/ family needs subject to the condition that only one member from the household will be eligible for overdraft facility. I shall abide by the terms and conditions stipulated by the Bank in this regard.

**Declaration:**

I hereby apply for opening of a Bank Account. I declare that the information provided by me in this application form is true and correct. The terms and conditions applicable have been read over and explained to me and have understood the same. I shall abide by all the terms and conditions as may be in force from time to time. I declare that I have not availed any Overdraft or Credit facility from any other bank.

**Place:**

**Date:**

**Signature / LTI of Applicant**

**Nomination:**

I want to nominate as under				
Name of Nominee	Relationship	Age	Date of Birth in case of minor	Person authorised in case to receive the amount of deposit on behalf of the nominee in the event of my /minor(s) death.

**Place:**

**Date:**

**Signature / LTI of Applicant**

**Witness(es)\***

1. \_\_\_\_\_

2. \_\_\_\_\_

\*Witness is required only for thumb impression and not for signature

## UNIT 10.3.3: Costs: Fixed vs. Variables: What are Fixed and Variable Costs?

### Unit Objectives

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

- Differentiate between fixed and variable costs

### Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

### Ask

- What is cost?
- Will a telephone bill fall under the category of a fixed or variable cost?

### Say

- Discuss: Fixed and Variable cost with examples. Let us do a small activity.

### Team Activity

Identify the type of cost

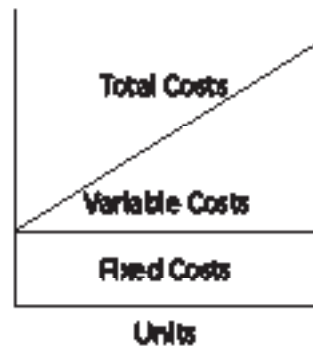
1. Rent
2. Telephone bill
3. Electricity bill
4. Machinery
5. Insurance
6. Office supplies/Raw materials
7. Employee salaries
8. Commission percentage given to sales person for every unit sold
9. Credit card fees
10. Vendor bills

### Do

- Divide the class into two groups. Read out the list of costs given in the activity.
- Read out each item from the cost list and ask the groups in turns to identify whether it is a fixed or variable cost.

## Say

- We saw that your utility bills like rent, electricity, telephone etc. are all fixed costs because you have to pay it every month.
- Variable costs is an expense which varies with production output or volume. For example commission, raw material etc.
- Discuss "Cost: Fixed vs. variables" with the participants as given in the Participant Handbook.
- Illustrate the relation between the costs with a graph.



- Let's learn the difference between fixed and variable cost with the help of an activity.

## Team Activity

### Fixed vs. Variable Costs

- This is a group activity.
- You want to start your own entrepreneur business.
- State the type of business you want to start.
- List down all the cost or requirements for your business.
- How will you differentiate between the fixed and variable cost.

### Activity De-brief

- What is the total cost of your business?
- What are the fixed costs?
- What are the variable costs?
- How did you differentiate between the fixed and variable costs?

## Do

- Instruct the participants that this is group work.
- Divide the class into small groups of 4 or 6.
- Give each group a sheet of paper.
- Tell the participants that they have to start their own entrepreneur business.
- Ask them the type of business they want to start.
- Instruct them to differentiate between the fixed and the variable costs of the business they want to start.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

## Summarize

- Note: You can summarize the unit either by having a role play between a consultant and a budding entrepreneur explaining the differences between fixed and variable costs or by discussing the key points of the unit.

## Notes for Facilitation

- Answers for the activity – Identify the type of cost

1. Rent	(Fixed)
2. Telephone bill	(Fixed)
3. Electricity bill	(Fixed)
4. Machinery	(Fixed)
5. Insurance	(Fixed)
6. Office supplies/raw materials	(Variable)
7. Employee salaries	(Fixed)
8. Commission percentage given to sales person for every unit sold	(Variable)
9. Credit card fees	(Variable)
10. Vendor bills	(Variable)

## UNIT 10.3.4: Investments, Insurance and Taxes

### Unit Objectives

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

- Describe the main types of investment options
- Describe the different types of insurance products
- Describe the different types of taxes

### Resources to be Used

- Participant Handbook

### Ask

- Ask the participants- "What do you see first thing in when you get your mobile bill? Apart from the amount and due date do you have a look at the taxes you are being billed for?"
- Why do you think people get their cars insured or have a medical insurance?
- You have saved money and want to invest it, how would you decide what is the best investment for your money?

### Example

- Let's have a look at a few scenarios.

Ranbir has sold his house and deposited the money in his bank. His Chartered Accountant tells him that he will have to re-invest the money otherwise he will have to pay capital tax. What is capital tax and how is it different from income tax?

Jasmeet and Anup are blessed with a baby girl. They decide to have an insurance policy that will mature when their daughter is ready to higher education.

Shivani is working in a corporate office and getting good pay. She will have to pay income tax so she decides to invest her money in tax saving schemes. She goes to the bank manager to discuss the best products in which she can invest.

### Say

- Discuss the investment, insurance and taxes as given in the Participant Handbook.

### Ask

- How do investments, insurances and taxes differ from each other?

### Say

- Let's learn the differences between the three by having an activity.

### Say

- We will have a quiz today.

## Team Activity

- The activity is a quiz.

## Do

- Divide the class into groups of three and give a name to each group
- Explain the rules of the quiz. For each correct answer the group gets 1 mark. If the group is unable to answer the question is rolled over to the next group.
- Explain the purpose and duration of the activity.
- On the blackboard write the names of the groups.
- Ask the questions of the quiz.
- Keep a score for the groups.
- Set guidelines pertaining to discipline and expected tasks.

## Summarize

- Summarize the unit by discussing the key points and answering question

## Notes for Facilitation

### Questions for the quiz

1. What are bonds?  
*Bonds are instruments used by public and private companies to raise large sums of money.*
2. Who issues the bonds?  
*Private and public companies issue the bonds.*
3. Why are bonds issued?  
*To raise large amount of money as it cannot be borrowed from the bank.*
4. Who is the buyer of stocks and equities?  
*The general public is the buyer.*
5. What type of scheme is the Sukanya Samridhi Scheme?  
*Small Saving Scheme*
6. What is the difference between mutual and hedge funds?  
*Mutual funds are professionally managed financial instruments that invest the money in different securities on behalf of investors. Hedge funds invest in both financial derivatives and/or publicly traded securities.*
7. Why is a loan taken from the bank to purchase real estate?  
*To lease or sell to make profit on appreciated property price.*
8. Name the two types of insurances?  
*Life insurance and Non-life or general insurance*
9. Which insurance product offers financial protection for 15-20 years?  
*Term insurance*
10. What is the benefit of taking an endowment policy?  
*It offers the dual benefit of investment and insurance.*
11. Mr. Das gets monthly return on one of his insurance policies. Name the policy?  
*Money Back Life insurance*

12. What are the two benefits of a Whole Life Insurance?  
*It offers the dual benefit of investment and insurance*
13. Which policy covers loss or damage of goods during transit?  
*Marine Insurance*
14. After what duration is the Income tax levied?  
*One financial year*
15. What is long term capital gain tax?  
*It is the tax payable for investments held for more than 36 months.*
16. Name the tax that is added while buying shares?  
*Securities Transaction Tax*
17. What is the source of corporate tax?  
*The revenue earned by a company.*
18. Name the tax whose amount is decided by the state?  
*VAT or Value Added Tax*
19. You have bought a TV. What tax will you pay?  
*Sales Tax*
20. What is the difference between custom duty and OCTROI?  
*Custom duty is the charges payable when importing or purchasing goods from another country. OCTROI is levied on goods that cross borders within India.*

## UNIT 10.3.5: Online Banking, NEFT, RTGS, etc.

### Unit Objectives

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

- Discuss the uses of online banking
- Discuss the main types of electronic funds transfer

### Resources to be Used

- Participant Handbook
- Computer System with Internet connection
- Debit card

### Ask

- When was the last time you visited a bank?
- How do you pay your bill for electricity and telephone?
- Have you ever tried to transfer money from one bank account to another bank account using the online banking facility?

### Say

- Most of us lead a busy life. Time has become more important than money. In this busy schedule no one has time to stand in bank queues. That's where Online Banking comes in. Online banking or internet banking means accessing your bank account and carrying out financial transactions through the internet.
- Discuss "What is online banking?" from the Participant Handbook.
- There are various advantages of online banking:
  - It saves time, as you need to visit the branch.
  - You can conduct your banking transactions safely and securely without leaving the comfort of your home.
  - Online Banking also gives you round the clock access.
  - Online Banking makes it possible for you to pay your bills electronically.

### Do

- Show them how they can use the internet banking.
- Use the computer system and show the demo videos on how to use internet banking provided on most banking sites. the computer system.
- Tell the class the various features of online banking:
  - Through their website set-up your online account.
  - Choose a secure username and password.
  - Set-up your contact information.
  - Once your information is verified, you are good to go.
  - Once you enter the portal explore all the features and learn your way through the portal.
- Discuss about maintaining the security of the online account.

**Say** 

- One of the biggest advantage that online banking offers, as discussed earlier, is transferring money from one account to another. This transaction is called electronic funds transfer. Electronic transfers are processed immediately with the transferred amount being deducted from one account and credited to the other in real time, thus saving time and effort involved in physically transferring a sum of money.
- Discuss "Electronic Funds Transfer" from the Participant Handbook.

**Do** 

- Discuss how to transfer money from one account to another using online banking (NEFT/RTGS, etc.).
- Illustrate with an example.

**Summarize** 

- Close the discussion by summarizing the about online banking.
- Ask the participants if they have any questions related to what they have talked about so far.





## UNIT 10.4: Preparing for Employment & Self Employment

### Key Learning Outcomes

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

1. Discuss the steps to follow to prepare for an interview
2. Discuss the steps to create an effective resume
3. Discuss the most frequently asked interview questions
4. Discuss how to answer the most frequently asked interview questions
5. Identify basic workplace terminology

## UNIT 10.4.1: Interview Preparation: How to Prepare for an Interview?

### Unit Objectives

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

- Discuss the steps to follow to prepare for an interview

### Resources to be Used

- Participant Handbook

### Ask

- Have you ever attended an interview?
- How did you prepare before going for an interview?

### Say

- An interview is a conversation between two or more people (the interviewer(s) and interviewee) where questions are asked by the interviewer to obtain information from the interviewee.
- It provides the employer with an opportunity to gather sufficient information about a candidate and help them select the ideal candidate.
- It also provides the interviewee with an opportunity to present their true potential to the employer, build confidence and help make a decision about the job by asking questions regarding designation, salary, perks, benefits, promotions, transfers, etc.
- Let's do an activity to understand how to prepare for interviews better.

### Activity 1

- Introducing Yourself

### Do

- Select a participant and ask him/her to answer the following questions: "What can you tell me about yourself?"
- Give the participant at least one minute to speak.
- Once he/she is done, ask the rest of the participant what they gathered about the participant who was providing information.
- Now repeat the exercise with five other participants.

### Ask

- What information you should include when you are describing or introducing yourself in an interview?
- What information you should not include when you are describing or introducing yourself in an interview?

## Say

- Tell the participants that when an interviewer asks you to say something about yourself, he/she is not asking you to present your life history.
- Introduction should be short and crisp, and should present you in a positive light. It should include the following points:
  - Any work experience that you might have
  - A brief summary of your educational qualifications
  - Your strengths and achievements
  - Any special projects that you might have been part of
- The following topics should be avoided during an introduction:
  - Detailed description of your family (unless you are specifically asked to do so)
  - Too much information about your weaknesses
  - Information that is not true

## Do

- Congratulate each participant for sharing their points.
- Ask the audience to applaud for them.
- Ask de-brief questions to cull out the information from each group.
- Keep a check on time.

## Activity 2

- Planning the right attire

## Do

- Describe 2 individuals to the participants. One is wearing a casual t-shirt, jeans, and slippers. He has not combed his hair and neither has he trimmed or shaved his beard. The other individual is dressed formally with a shirt and pant, and is well-groomed. He has also worn formal shoes and a belt. Ask the participants which person would they prefer to hire in their organization and why?

## Summarize

- Close the discussion by discussing 'how to prepare for an interview' as discussed in the Participant Handbook.
- You can add the following points to it:
  - Tell the participants to create a positive and good impression in an interview. It is important for them to prepare for an interview beforehand.
  - The interviewer analyses not only your technical knowledge in relation to the job, but also whether or not you are a fit for the organization.
  - Every employer looks at the whole package and not just one or two things in isolation. Therefore, the way you dress and the way you present yourself is also important along with your skills and talents.
  - The participants will get only one chance to create a good first impression.

## UNIT 10.4.2: Preparing an Effective Resume: How to Create an Effective Resume?

### Unit Objectives

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

- Discuss the steps to create an effective Resume

### Resources to be Used

- Participant Handbook
- Blank papers
- Pens

### Ask

- When preparing for an interview, what are the most important things that you need to do?
- What documents do you carry with you, when you go for an interview?
- What is a resume?
- Why do you need a resume?

### Say

- Resume is not just a sheet of paper with your qualifications printed on it.
- It is a selling tool that will help the employer to see how and what you can contribute for company.
- Talk about the steps involved in creating an effective/attractive resumes discussed in the Participant Handbook.
- Now let's prepare a resume to understand the process in a better way.

### Do

- This is an individual activity.
- Give the details of the activity.
- Instruct them to read the activity carefully.
- The participant is expected to make an attractive resume based on the information provided.
- Give the class 25-30 minutes to study the case and create a resume.
- At the end of 30 minutes, the participants should exchange the resume with the person sitting next to him or her.
- Every participant will evaluate the resume prepared with their fellow participants.

### Say

- Do you think the candidate should apply for the job posting described in the advertisement?
- We have already discussed the steps involved in creating an effective/attractive resumes.
- Now let's prepare a resume for the candidate details given in the activity.

## Activity

### Case Study Analysis

- In the first section of the activity, you are being given the information about a candidate who is applying for a particular job.
- In the second section, you are being given the detailed description of the job posting. Create a resume for the candidate to apply for the job posting.
- Use the information that has been provided about the candidate to create this resume.

### Candidate Details

Nipesh Singla was born on 20th April, 1988 in Chandigarh, India. He currently resides at 1XK7, Sector XX D, Chandigarh –160018. His mobile number is 988X000001, and e-mail address is nxxxxxxoda@gmail.com. Nipesh attended middle and senior school at Government Boys Senior Secondary School, Sector 15, Chandigarh. He has been a very talented boy since school. He was fond of painting and watching old Hindi movies. As part of a school charity program, he volunteered at the children's hospital during his senior years.

In July 2007, he joined Westwood School of Hotel Management, Zirakpur to pursue a diploma course in Hotel Management and Catering. After completing this course, he joined XYZ Group of Hotels as a Housekeeping Intern in June 2010 for six months. In this role, he was responsible for cleanliness and maintenance of one floor in the hotel. Taking advantage of his strong Interpersonal skills, he also got opportunities to make housekeeping arrangements for corporate meetings. While pursuing education, he gained working knowledge of Microsoft Word, Excel, Access and PowerPoint.

Nipesh is detail-oriented, flexible and adaptable. He has successfully worked with a diverse work force. He gelled well with his peers, both in college and during his internship. After completing the internship, his objective has been to find a job opportunity where he can use his skills and experience. Backed by experience, he is confident about his skills as housekeeping assistant.

### Job Posting

\* Do you see yourself as a HOUSEKEEPING SUPERVISOR?

What's your passion? Whether you're into cricket, reading or hiking, at IHG we are interested in YOU. At IHG, we employ people who apply the same amount of care and passion to their jobs as they do in their hobbies - people who put our guests at the heart of everything they do. And we're looking for more people like this to join our friendly and professional team.

#### THE LOCATION:

At the moment, we are looking for HOUSEKEEPING SUPERVISOR to join our youthful and dynamic team at Holiday Inn Amritsar, Ranjit Avenue in Amritsar, Punjab (India). Holiday Inn Amritsar is ideally located in Amritsar's commercial district on Ranjit Avenue with the world famous Golden Temple located only a short distance away. Sparkling chandeliers mark an incomparable arrival experience as you escape to the welcoming environment that is, Holiday Inn Amritsar. The fresh international brand to celebrate and explore Amritsar.

**Salary:** Negotiable

**Industry:** Travel / Hotels / Restaurants / Airlines / Railways

**Functional Area:** Hotels, Restaurants

**Role Category:** Housekeeping

**Role:** Housekeeping Executive/Assistant.

#### Desired Candidate Profile

Friendly, pleasant personality, Service-oriented.

You should ideally be Graduate/ Diploma holder in HM and at least 2 years of experience as a supervisor in good brand with good communication skills, English is a must.

In return we'll give you a competitive financial and benefits package. Hotel discounts worldwide are available as well as access to wide variety of discount schemes and the chance to work with a great team of people. Most importantly, we'll give you the room to be yourself.

\*Please get in touch and tell us how you could bring your individual skills to IHG.

Education-

UG: Any Graduate/ Diploma holder

PG: Post Graduation Not Required

## Say

- Now, let's share the resume with the fellow participant sitting next to you and evaluate each other's effort.

## Do

- Congratulate each participant for making their first attempt towards creating an effective resume.
- As a follow up activity, you can suggest them to prepare their own resume and show it to you the next day.

## Summarize

- Close the discussion by showing some effective resume samples to the candidates.
- Ask the participants what they have learnt from this activity.
- Ask if they have any questions related to what they have talked about so far.

## Notes for Facilitation

- Keep printed copies of the activity ready for the session.
- Put down the suggested format of the resume on the board while explaining the steps in preparing a resume.
- Do check the participants' resume and suggest necessary changes.
- Suggested example for the case presented:

Nipesh Singla  
#1107, Sector 10K-D  
Chandigarh-160018  
Mobile No: 91-9881000001  
E-mail: n0000000da@gmail.com

**Objective:** Seeking an opportunity to use my interpersonal skills and experience to contribute to your company's growth, profitability and objectives.

**Professional strengths:**

- Proficient in housekeeping
- Experienced in and capable of working with a diverse workforce
- Team player and friendly in nature
- Successful working in a multi-cultural environment

- Detail oriented, flexible, and adaptable
- Knowledge of Microsoft Word, Excel, Access and PowerPoint

**Educational background:**

- Diploma In Hotel Management and Catering, Westwood School of Hotel Management, Zirakpur
- High School, Government Boys Senior Secondary School, Sector 15, Chandigarh

**Professional internships:**

- Housekeeping Intern, XYZ Group of Hotels, New Delhi (June 2010– August 2010)
  - Responsible for cleanliness and maintenance of one floor in the hotel.
  - Got opportunities to make housekeeping arrangements for corporate meetings.

**Volunteer Work:**

- Student volunteer at children's hospital in Chandigarh.

**Nipesh Singla**

## UNIT 10.4.3: Interview FAQs

### Unit Objectives

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

- Discuss the most frequently asked interview questions
- Discuss how to answer the most frequently asked interview questions

### Resources to be Used

- Participant Handbook

### Say

- Tell the participants you will provide them with interview situation and questions and they have to try to answer them.
- Tell them you will also explain the different ways to approach these questions.

### Do

- Divide the class in pairs and ask the participants to perform a role play.
- One partner will play the role of the interviewer while the other will play the role of the interviewee.
- Tell them the interviewer can start the interview by asking the interviewee to introduce himself/herself.
- Call all the pairs one by one in front of the class to enact the role play.
- Follow the same pattern for all other situations.
- Time allotted for each situation is 8-10 minutes.
- Congratulate each participant for giving their input.
- Ask the class to applaud each time a team has completed their role play.
- Keep a check on time.

### Role Play

Conduct a role play for the situation given.

#### Situation 1

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Then, the interviewer will bluntly ask the following questions:
  - How do you explain this huge time gap in your resume?
  - What is the reason for this?
  - Weren't you looking for a job or is it that no one selected you?

**Say** **De-brief:**

- When you put information on your resume, you should be prepared to answer any questions about it.
- Be present and focused on the questions being asked to you.
- One way of tackling the blunt questions is to tell the interviewer you did not come across an opportunity where you were sufficiently satisfied with both the remuneration offered as well as the profile. Therefore, you waited for the right opportunity to come along while looking for an ideal job.

**Role Play** 

Conduct a role play for this situation given.

**Role Play— Situation 2**

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Then, at the end of the interview, ask the interviewee:
  - There are over 200 people who have applied for this job, some with excellent work experience. Why should I hire you?

**Say** **De-brief:**

- There is nothing wrong with stating your strengths and achievements. However, do not come across as arrogant or too boastful.
- You need show the interviewee that you have unique skills or talents to contribute to the company. The interviewer needs to know how you stand apart from the rest of the crowd.
- Tell the interviewer you are looking forward to working with the company and that you are a hard-working individual.

**Role Play** 

Conduct a role play for this situation given.

**Role Play— Situation 3**

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Then, lean forward, clasp your hands on the table and in a soft voice ask the interviewee:
  - Did you ever experience any neglect or disregard from your previous office? In other words, did you ever suffer because your office or team displayed favouritism?

**Say** **De-brief:**

- Keep this in mind: Do not criticize anyone during an interview.
- You are free to express your opinion, however, your language, answers, body language, and the tone of your voice should remain constructive and neutral.
- Since criticism will show you in negative light, you should keep your answers honest yet diplomatic.
- You can tackle such questions by saying, "I got along well with most of my faculty and peers."

## Role Play

Conduct a role play for the situation given.

### Role Play—Situation 4

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Then very bluntly ask the interviewee:
  - How long do you plan to stay with this company if you are selected?
- After the candidate responds, ask sarcastically:
  - Do you seriously mean that?

## Say

### De-brief:

- Don't provide unreal and idealistic answers.
- Your answers should be honest yet diplomatic. In a situation like this, the interviewer does not expect you to provide a specific timeline.
- You can say something like, "I would like to stay with the company as long as I can contribute constructively and develop as an employee, within the organization, professionally and financially."

## Role Play

Conduct a role play for the situation given.

### Role Play—Situation 5

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Ask him/her how important he/she thinks it is to be punctual in the corporate world.
- After he/she answers, look up sternly at the interviewee and in a crisp voice, say:
  - You were late for this interview by 10 minutes. That surely does not seem to be in line with what you just said?

## Say

### De-brief:

- Fully apologize for being late.
- You can add something such as, "I assure you this is not a habit". All your future actions should be in line with this statement.
- Avoid giving any excuses.
- You might feel obligated to provide a justification for your tardiness, but the interviewer is not interested in that.
- Do not over apologize. Once this response is out of the way, turn your focus back to the interview.

## Role Play

Conduct a role play for the situation given.

### Role Play— Situation 6

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- After asking a few academic or job-related questions, ask the interviewee:
  - If you get this job, what salary package do you expect us to give you?

## Say

**De-brief:**

- If there is no way for you to avoid this question, respond to the interviewer by providing a reasonable and well-thought-out salary range.

## Role Play

Conduct a role play for the situation given.

### Role Play— Situation 7

- The interviewer will start by asking the interviewee a few generic questions such as:
  - What is your name?
  - Tell me something about yourself?
  - Can you tell me something about your family?
- Then, bringing the interview to a close, ask the interviewee:
  - Do you have any questions for me?

## Say

**De-brief:**

- Ask relevant questions.
- Don't bombard the interviewer with questions.
- If you have questions about the result of the interview, you can limit your questions to 1 or 2. Keep them short and relevant like:
  - When will I be informed about the results of the interview?
  - What are the working hours?
  - Will the job require me to travel?

## Explain

- Tell the participants to be prepared for answering different types of questions in an interview.
- Stay calm and focused, and take a moment to think about how you should respond. Always maintain a confident tone.
- Even if you don't intend to, your body language conveys your level of discomfort with a particular question. Try to keep your actions, tone, and gestures neutral.
- Maintain your composure while answering personal question.

**Do** 

- Tell all the participants to form pairs again.
- Tell them to use the following list of frequently asked interview questions to conduct mock interviews.
- They will use all or some of these questions to conduct mock interviews with their partners.
- One partner will play the role of the interviewer while the other will play the role of the interviewee.
- After they are through asking and answering the questions, the roles will be reversed.
- The same list of questions will be used again.
- After each mock interview ask the interviewer to provide feedback and clear any doubts that may arise.
- Time allotted for each situation is 30-35 minutes.

**Activity** **Mock Interview Questions**

Mock Interview Questions
Tell me something about your family.
What qualities would you look for in a Manager or a Supervisor?
Why did you apply for this job?
What do you know about this company?
How do you deal with criticism?
How do you plan to strike a good work-life balance?
Where do you see yourself five years from now?
Have you applied for jobs in other companies?
What kind of salary do you expect from this job?
Do you have any questions for me?

**Summarize** 

- Close the discussion by discussing the questions in the both activities.
- Ask the participants what they have learned from this activity.
- Ask if they have any questions related to what they have talked about so far.

## UNIT 10.4.4: Work Readiness – Terms and Terminology

### Unit Objectives

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

- Identify basic workplace terminology

### Resources to be Used

- Participant Handbook
- Chart papers
- Blank sheets of paper
- Pens

### Ask

- What do you understand by workplace terminology?
- Are offer letter and contract of employment the same?

### Say

- Let's start this unit with an activity.

### Team Activity

#### Workplace terminology

- This is a group activity conducted in three parts.

#### Part 1

Sheila received a call from the recruiter of MND Company. Before she is recruited by the company, think of the recruitment process she will have to go through. Start from the telephone call to signing her letter of acceptance. Write down all the words that come to your mind.

#### Activity De-brief

- Have the participants read out the words they have written
- Encourage all the participants to participate in the activity

### Do

- Divide the class into small groups of 4 or 6.
- Instruct the participants that they will be doing a brainstorming activity.
- Give them one chart paper each. Tell them to divide the chart in two parts.
- Instruct them that they have to use one half of the chart paper now. The other half will be used later.
- The participants have to write all the words that come to their mind related to the recruitment process.
- Give them 10 minutes to do the activity.
- Tell them that there are no right or wrong answers.
- Keep a track of the time.

**Say** 

- You all know quite a few words related to the terms used in the office.
- Let us talk about some new terms that have been missed out.
- Discuss “Work Readiness— Terms and Terminology” with the participants as given in the Participant Handbook.

**Ask** 

- Why is it important to know the workplace terms?
- How do they help?
- Can the words be categorised further?

**Say** 

- Let's now continue the activity.

**Team Activity** **Terms and Terminology**

- This is again a group activity. The members of the group remain the same as in Activity 1.

**Part 2**

With the help of the new terms you have learned, make a flow chart of the hiring process of MND Company.

**Activity De-brief**

- Ask the groups to share the flow charts and the new terms they added while preparing the flow chart.

**Do** 

- Instruct the participants that they have to use the 2nd half of the same chart they had used before.
- Using the new terminology and the terms they had previously written on the chart, they have to make a flow chart of the hiring process of the MND Company.
- Give them 10 minutes for this activity.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Say** 

- Let's go ahead with the activity.

**Team Activity** **Terms and Terminology**

- The activity continues with the same group members.

**Part 3**

Sheila now works for the MND Company. She is not aware of the company culture and policies. She goes to the HR Department to get her doubts clarified. Can you think of the terms for which she wants clarity? Make a list of those words.

**Activity De-brief**

- Ask the groups to share their list of words. Some of the words are benefits, comp. time, deduction, employee training, holidays, lay-off/leave, maternity leave, mentor, notice, paternity leave, and time sheet.

**Do** 

- Instruct the participants to identify the key terms an employee of a company should know. They can use the same chart paper for this activity.
- Give them 5 minutes for this activity.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Summarize** 

- Note: You can either summarize the key points of the unit or have a role play where an employee has just joined a company and the HR Manager explains the terms of employment.



## UNIT 10.5: Understanding Entrepreneurship

### Key Learning Outcomes



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

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Describe the characteristics of an entrepreneur
4. Describe the different types of enterprises
5. List the qualities of an effective leader
6. Discuss the benefits of effective leadership
7. List the traits of an effective team
8. Discuss the importance of listening effectively
9. Discuss how to listen effectively
10. Discuss the importance of speaking effectively
11. Discuss how to speak effectively
12. Discuss how to solve problems
13. List important problem solving traits
14. Discuss ways to assess problem solving skills
15. Discuss the importance of negotiation
16. Discuss how to negotiate
17. Discuss how to identify new business opportunities
18. Discuss how to identify business opportunities within your business
19. Explain the meaning of entrepreneur
20. Describe the different types of entrepreneurs
21. List the characteristics of entrepreneurs
22. Recall entrepreneur success stories
23. Discuss the entrepreneurial process
24. Describe the entrepreneurship ecosystem
25. Discuss the purpose of the Make In India campaign
26. Discuss key schemes to promote entrepreneurs
27. Discuss the relationship between entrepreneurship and risk appetite
28. Discuss the relationship between entrepreneurship and resilience
29. Describe the characteristics of a resilient entrepreneur
30. Discuss how to deal with failure

## UNIT 10.5.1: Concept Introduction (Characteristic of an Entrepreneur, types of firms/ types of enterprises)

### Unit Objectives

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

- Discuss the concept of entrepreneurship
- Discuss the Importance of entrepreneurship
- Discuss the characteristics of an entrepreneur
- Describe the different types of enterprises

### Resources to be Used

- Participant Handbook

### Say

- Let's start this session with some interesting questions about Indian entrepreneurs.

### Team Activity

#### Quiz Questions

1. Who is the founder of Reliance Industries?  
Dhirubhai Ambani
2. Who is the Chairman of Wipro Limited?  
Azim Premji
3. Who launched e-commerce website Flipkart?  
Sachin Bansal and Binny Bansal
4. Who is the founder of Paytm?  
Vijay Shekhar Sharma
5. Who is CEO of OLA Cabs?  
Bhavish Aggarwal
6. Who is the founder of Jugnoo?  
Samar Singla (auto/cab aggregator)
7. Who is the founder of OYO Rooms?  
Bhavish Aggarwal

### Do

- Tell them that you will ask them few questions about a few entrepreneurs.
- Divide the class in to two groups.
- In turns ask the quiz questions to the groups.
- If the answer is incorrect pass the question to the other group.
- Share the answer if the groups are not able to answer.
- Congratulate the participants who answered correctly.

**Ask** 

- What do you understand by entrepreneurs?
- What is the importance of entrepreneurship in today's scenario?
- What do you think are the characteristics of successful entrepreneurs?
- What are different types of enterprises that an entrepreneur in India can own and run?

**Say** 

- Talk about entrepreneurs, importance of entrepreneurship, characteristics of successful entrepreneurs, and different types of enterprises in India as discussed in the Participant Handbook.
- Tell the participants, stories of successful Indian entrepreneurs—their struggles, the moments of heartbreak, the perseverance and triumph.
- Ask them if they know of any such entrepreneur.

**Summarize** 

- Close the discussion by summarizing about the opportunities for entrepreneurs in India.

**Notes for Facilitation** 

- Check out different Government schemes for small entrepreneurs. Share the information with the participants.
- You can tell them about the government websites like Start Up India, [mudra.org.in](http://mudra.org.in) etc.
- Discuss about various schemes and policies by the Government of India for entrepreneurs.

## UNIT 10.5.2: Leadership and Teamwork

### Unit Objectives

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

- List the qualities of an effective leader
- Discuss the benefits of effective leadership
- List the traits of an effective team

### Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

### Do

- Show the picture given below to the class.
- Ask them to quickly write on a piece of paper what comes to their mind after seeing the picture.
- Now ask them, "What do you understand from this picture?"
- Encourage participants to share their thoughts.



### Say

- This picture depicts the qualities of a leader and the difference between a leader and a boss.
- A boss focuses on structure and inspires fear whereas a leader follows vision and generates enthusiasm.
- A boss blames employees for the breakdown whereas a leader fixes breakdowns.
- A boss depends on authority whereas a leader depends on goodwill.
- A boss says "I" and a leader says "We."
- A boss drives employees whereas a leader coaches them.
- A boss takes credit whereas a leader gives credit.

### Say

- Talk about leadership and leadership qualities for an entrepreneur as discussed in the Participant Handbook.

### Ask

- Why is it important for a leader to be effective? How does it help the organization?

**Say** 

- Let us discuss benefits of effective leadership as discussed in the Participant Handbook.
- "Out-of-the-box thinking" is one of the new leadership styles. It means thinking differently and from a new perspective.

**Ask** 

- Do you consider yourself a team player?

**Team Activity** **Long Chain**

- This is a group activity.

**Do** 

- Divide the class into 2 teams.
- Ask each team to create a chain using materials they have in class such as shoe laces, belts, paper, handkerchief, ribbons, etc.
- The team that creates the longest chain wins the game.
- Observe if the participants are interacting with their team or working in isolation.
- Share your observations with the class.

**Say** **De-brief:**

- What did the winning team do differently?
- Who was responsible for the winning team's success?
- How does this activity explain the role of teamwork in entrepreneurial success?

**Say** 

- Tell the class that both the teams performed well.
- Discuss that the objective of this activity was to open communication channels and how this has been achieved.
- The participants should aim to keep the communication channels open when interacting with their peers and team members.
- It will set the pace and enthusiasm required for all the ensuing teamwork activities.
- Talk about teamwork and importance of teamwork in entrepreneurial success as discussed in the Participant Handbook.

**Summarize** 

- Close the discussion by summarizing about the importance of teamwork for employees.
  - Teamwork helps in reducing stress for the employees.
  - Teamwork helps employers in generating more number of solutions to a problem and developing improved communication amongst employees.
- Ask the participants what they have learned from these exercises.
- Ask if they have any questions related to what they have talked about so far.

## UNIT 10.5.3: Communication Skills: Listening & Speaking: The Importance of Listening Effectively

### Unit Objectives

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

- Discuss the Importance of listening effectively
- Discuss how to listen effectively
- Discuss the Importance of speaking effectively
- Discuss how to speak effectively

### Resources to be Used

- Participant Handbook

### Activity 1

#### Activity – Chinese Whisper

Step 1: Form a circle.

Step 2: Start a whisper chain. Any one participant will whisper a message into his/her neighbour's ear. No one else must hear the message. The message can be serious or downright silly.

Step 3: The next person who first heard the message should whisper the message very quickly to the person sitting next to them.

Step 4: The game goes on until the last person says whatever they heard out loud and the first person reveals the real message.

Compare them and have a great laugh!

### Ask

#### De-brief questions:

- Was the original message the same as the message that is communicated at the end of the game?
- Why do you think there was a difference in the messages?

### Say

- No, the original message was not same at the end of game.
- The barriers to communication like language, disturbance and noise, poor listening skills, boredom, poor speaking skills, etc. are the potential reasons this happens.
- There are various aspects to communication. Speaking skills and listening skills are two major components to any communication. There is always some room for improvement in the way we communicate.
- It is important to accept the reality of miscommunication and work to minimize its negative impacts.

**Say** 

- Communication is a two-way process where people exchange information or express their thoughts and feelings
- It involves effective speaking and effective listening.
- If I go to the store to get bread, I exchange money for the bread. I give something and get something in return. Communication takes place in the same manner. You have to provide and receive information for communication to take place.

**Ask** 

- How often do you hear these statements?
  - "You're not listening to me!"
  - "Why don't you let me finish what I'm saying?"
  - "You just don't understand!"
- What do you think the other person is trying to convey to you through these sentences?
- We will not talk about the importance of listening effectively as discussed in the Participant Handbook.

**Say** 

- Let's play a game to understand effective listening process better.

**Do** 

- This is a class activity.
- The participants need to answer the questions they hear.
- Instruct them to listen carefully.
- You will read it at a stretch and if need be repeat it once more.
- Tell the participants to raise their hand if they know the answer to the question asked.
- Keep a check on time.

**Activity 2** **Riddles:**

Is there any law against a man marrying his widow's sister?

If you went to bed at eight o'clock at night and set the clock's alarm to ring at nine o'clock, how many hours of sleep would you get?

Do they have a 26th of January in England?

If you had only one match and entered a dark room that had a kerosene lamp, oil heater, and a wood stove, what would you light first?

The Delhi Daredevils and the Chennai Super Kings play five IPL matches. Each wins three matches. No match was a tie or dispute. How is this possible?

There was an airplane crash. Every single person died, but two people survived. How is this possible?

If an airplane crashes on the border of two countries, would unidentified survivors be buried in the country they were travelling to or the country they were travelling from?

A man builds an ordinary house with four sides except that each side has a southern exposure. A bear comes to the door and rings the doorbell. What is the colour of the bear?

**Answers:**

There's no law against a man marrying his widow's sister, but it would be the neatest trick in the book since to have a widow, the man would have to be dead.

You'd get one hour's sleep since alarm clocks do not know the difference between morning and night.

Oh, yes. They have a 26th of January in England. They also have a 27th, a 28th, and so on.

First of all, you would light the match.

Who said the Delhi Daredevils and the Chennai Super Kings were playing against each other in those games?

Every SINGLE person died, but those two were married.

You can't bury survivors under any law especially if they still have enough strength to object.

The bear that rang the doorbell would have to be a white bear. The only place you could build a house with four southern exposures is at the North Pole where every direction is in South.

**Ask** **De-brief questions:**

- What were the barriers that came into your way of listening?
- How can you overcome barriers to listening?

**Say** 

- There is a difference between hearing and listening.
- If you don't listen properly, the message may be misunderstood.
- Be open-minded while listening to someone.
- It is important to listen effectively and carefully without making assumptions.

**Activity 3** **Elevator Pitch:**

You are in the lift of a hotel and you bumped into your former client who is a famous businessman. He has financed a lot of small business ventures and can finance your new start-up too. After exchanging pleasantries, he asks you what your new company does. You open your mouth, and then pause. Where do you even begin?

Then, as you try to organize your thoughts, his meeting is called, and he is on his way. If you would have been better prepared, you're sure that he would have stayed long enough to schedule a meeting with you too.

If you were given another chance, what would you have said to this person?

**Do** 

- Start off the task by providing a beginning sentence to get the story started, and then go around the classroom getting each one to add a new sentence to keep the story going.
- This task should be done spontaneously allowing only a little time to think (30 seconds).
- For example: There was once a student who was looking for a job after graduation.

## Notes for Facilitation

- Tell the participants to follow these steps to create a great pitch, but bear in mind that you'll need to vary your approach depending on what your pitch is about.
  1. **Identify Your Goal:** Start by thinking about the objective of your pitch. For instance, do you want to tell the potential clients about your organization? Do you have a great new product idea that you want to pitch to an executive or do you want a simple and engaging speech to explain what you do for a living?
  2. **Explain What You Do:** Start your pitch by describing what your organization does. Focus on the problems that you solve and how you help people. Ask yourself this question as you start writing: what do you want your audience to remember most about you? Keep in mind that your pitch should excite you first. After all, if you don't get excited about what you're saying neither will your audience. People may not remember everything that you say, but they will likely remember your enthusiasm.
  3. **Communicate Your USP:** Your elevator pitch also needs to communicate your unique selling proposition or USP. Identify what makes you, your organization or your idea unique. You'll want to communicate your USP after you've talked about what you do.
  4. **Engage with a Question:** After you communicate your USP, you need to engage your audience. To do this, prepare open-ended questions (questions that can't be answered with a "yes" or "no" answer) to involve them in the conversation. Make sure that you're able to answer any questions that he or she may have.
  5. **Put it all together:** When you've completed each section of your pitch, put it all together. Then, read it aloud and use a stopwatch to time how long it takes. It should be no longer than 20-30 seconds. Remember, the shorter it is, the better!

### Example:

Here's how your pitch could come together:

"My company deals with cloth retail online business and we use various e-commerce platforms to sell our products. This means that you can do shopping with ease and spend time on other important tasks. Unlike other similar companies, we have a strong feedback mechanism to find out exactly what people need. This means that, on average, 95 percent of our clients are happy with our products. So, how can you help us in creating our own webportal?"

6. **Practice:** Like anything else, practice makes perfect. Remember, how you say it is just as important as what you say. If you don't practice, it's likely that you'll talk too fast, sound unnatural or forget important elements of your pitch. Set a goal to practice your pitch regularly. The more you practice, the more natural your pitch will become. Practice in front of a mirror or in front of colleagues until the pitch feels natural.

## Summarize

- Close the discussion by summarizing how to speak effectively as discussed in the Participant Handbook.

## UNIT 10.5.4: Problem Solving & Negotiation Skills

### Unit Objectives

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

- Discuss how to solve problems
- List the important problem solving traits
- Discuss ways to assess problem solving skills
- Discuss the importance of negotiation
- Discuss how to negotiate

### Resources to be Used

- Participant Handbook

### Ask

- What is a 'problem'?
- What do you think are the problems you may face in the process of becoming a successful entrepreneur?

### Say

- Discuss the definition of problem as given in the Participant Handbook.
- In a hurdle race the hurdles are the obstacles on the way to reach your goal.
- Similarly, obstacles are the hurdles you may face while reaching your goal i.e. to set-up your own business. Your goal will be to reach the finishing line after crossing these hurdles.

### Ask

- What do you do when you face a problem?
- How do you resolve it? You can pick examples from the question asked previously 'the problems they are likely to face in the process of becoming a successful entrepreneur'.

### Say

- Discuss how to solve problems as given in the Participant Handbook.

### Team Activity

- This is a group activity.
  - The groups will solve the problem and come up with the best solution in each case.
1. Unable to arrange for some extra finance for setting up a beauty parlour. The loan sanctioned and disbursed is not enough. You have tried all your contacts, friends and relatives. But unable to manage the extra amount. Bank will not sanction more amount as you have used up the complete sanction limit.
  2. You have rented a space for your business and all arrangements are done. You will be operating from the office space rented in two days. Now the owner comes up to you and says he wants to sell the place and wants you to vacate in 15 days.
  3. You have just set up your business and need extra human resource. You have tried involving a few also tied up with an agency for getting the right candidate. But you are unable to get the right candidate. If the candidate is good, you cannot offer the salary demanded. If the candidate agrees to the salary, he/she has other demands like working hours to be reduced, leaves etc. which may not work for your set up.

**Do** 

- Divide the class into three groups. Give one scenario to each group.
- Explain the purpose and duration of the activity.
- Ask the groups to build on the scenario and present their solution as a role play.

**Say** 

**De-brief questions:**

1. What was the problem?
2. Is there any other alternative solution?
3. Is this the best solution presented?

**Ask** 

- Try to think of some people around you who are able to solve problems very easily. Even you or your friends might be approaching them when there is a problem. What qualities do they have? What personality traits do such people possess?

**Say** 

- Discuss the important traits for problem-solving as given in the Participant Handbook.

**Ask** 

- In order to build a successful organization, you need to hire people who possess good problem solving skills. How would you assess the level of problem solving skills of potential candidates before hiring them?

**Say** 

- Discuss how to assess for problem-solving skills as given in the Participant Handbook.

**Summarize** 

- Ask the participants the things that they have learnt so far.
- Ask if they have any questions related to what they have talked about so far.
- Summarize the discussion on problem solving.

**Activity** 

- The activity is to organise an election event. Select three volunteers from the group. They have to give a speech on their election manifesto to the class. They have to negotiate with the fellow participants and convince them to vote for them. The best negotiator will win the election.

**Do** 

- Ask three participants to volunteer for the activity.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

**Ask** 

- Out of the three contestants, whom would you support? Why? What did they say or do which convinced you to make your decision?
- Have you ever tried to negotiate in your personal or professional life?
- Ask the class to share some of their experiences where they have been able to strike a deal by negotiating.

**Say** 

- Discuss "What is Negotiation?" as given in the Participant Handbook.

**Ask** 

- Why is it important to negotiate? As an entrepreneur, where do you think that negotiation skills will be needed?

**Say** 

- Discuss the importance of negotiation while starting a business as given in the Participant Handbook.

**Say** 

- Discuss the important steps to negotiate as given in the Participant Handbook.

**Role Play** 

- Conduct a role play activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

**Do** 

- Divide them into groups of four (4) (depending on the batch size).
- Give them the hand-outs for role play scenarios.
- Two groups to be given scenarios on problem solving.
- Other two groups to be given scenarios on negotiation.
- The groups will build on the scenarios and prepare for the role play.
- Give the groups at least 5 mins to discuss and be ready with the role play.
- Invite each group one by one to come and present their role play.

**Problem Solving Scenario 1**

Avinash has a Mobile Repair Store in Allahabad. His outlet is one of the most popular one in the vicinity and he has great rapport with his customers. He is always well-dressed, jovial and full of energy.

It's around 11 AM, when a customer barges in to the shop and starts shouting at Avinash for giving her back the instrument which is still not working. The screen of her mobile is also cracked from one side. Avinash remembered thoroughly checking the handset before handing it over to the customer. The customer threatens to sue the company and to go to Consumer Court for cheating her.

**Problem solving Scenario 2**

You are running a successful small scale business, Shreeji Aggarbattis. Your staff members do door to door selling and organise marketing campaigns in local markets. Your brand has established its name in last few years.

Recently, lot of customers have been coming to you and lodging complaints that your staff members indulge in malpractices. Few of them informed you that a staff member engaged them in a friendly conversation. In the meanwhile, the other gave them lesser packets of aggarbattis than they paid for.

Another set of customers lodge complaint about the misconduct and rude behaviour of a particular staff member.

You often hear from your customers that the orders don't get delivered on time or wrong products get delivered.

You have already been struggling with shortage of staff and such complaints are a serious concern as it is hampering your brand image. What strategies will you adopt to solve this problem?

**Negotiation Scenario 1**

You have interviewed a prospective new employee who could be a key member of your new entrepreneurial venture. The new person is demanding a salary that is 20% higher than you thought based on your business plan. Finances are tight, yet you believe this person could make a significant impact on future profits. If you paid the required salary for the new person, then you would have to restructure your entire business plan. You've been searching for an individual with this skill level for three months. The candidate is waiting for your response. Now you have to call him in to make the final negotiations.

**Negotiation Scenario 2**

You are a young entrepreneur who has just registered his start up project and applied for a bank loan accordingly. You receive a letter saying that your loan application has been rejected as your start up idea did not appeal to the bank and they think that it is not a revenue generating model. You have taken an appointment to meet the manager and show your negotiation skills to get your loan approved.

**Notes for Facilitation****Facilitating Role Plays****Preparing for the activity**

1. Carefully review the details of the scenario and the character descriptions.
2. Become familiar with the key issues being addressed in the scenario.
3. Study the provided material so that you are ready to address issues related to the situations depicted in the role-plays.
4. Anticipate and know how to address issues participants might raise during the activity.

**Conducting the activity**

1. Introduce the activity. Emphasize that role-playing provides participants with an opportunity to apply their new knowledge, skills, and tools in situations that simulate actual interactions with customers.
2. Ask participants to form pairs. Direct the members of each group to choose who will play the roles. Remind the groups that each participant should be given the opportunity to play/practice the different roles.
3. Conduct a demonstration so that participants become familiar with the expectations related to the roles and support materials.
4. Give the pairs/ groups 10 to 15 minutes to conduct the role-play (depending on the duration of the session).
5. After all the groups have finished with the role-play, conduct a debriefing session on each role-play.
6. Ask the groups to take five minutes to talk about what happened during the role-play. The groups should discuss the questions given in the debriefing for each role-play. Encourage participants to provide constructive criticism during their discussions.

**Summarize**

- Wrap the unit up after summarizing the key points and answering questions.

## UNIT 10.5.5: Business Opportunity Identification: Entrepreneurs and Opportunities

### Unit Objectives

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

- Discuss how to identify new business opportunities
- Discuss how to identify business opportunities within their business

### Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

### Ask

- How does an entrepreneur identify an opportunity?
- What do you think are the common queries or concerns faced by entrepreneurs?
- How can you identify new business opportunity?

### Say

- Let's talk about opportunity, common queries or concerns faced by entrepreneurs, idea as an opportunity, factors to consider when looking for opportunities, ways to identify new business, and opportunity analysis as discussed in Participant Handbook.
- Let's do an activity to understand ways to identify business opportunities within your business.

### Do

- Tell the class that this is an individual activity.
- Tell the participants to create a matrix on their notebooks.
- There will be four boxes in your matrix.
- Strength, Weakness, Opportunity and Threats will be the four headings of the matrix. This is called the SWOT matrix.
- Read out the questions to them and tell the participants they need to answer the questions asked in each matrix.
- Tell them they can also use their own understanding of themselves to fill the SWOT matrix.

### Activity

Do your SWOT analysis

#### Strength

- What are your strengths?
- What unique capabilities do you possess?
- What do you do better than others?
- What do others perceive as your strengths?

#### Opportunity

- What trends may positively impact you?
- What opportunities are available to you?

#### Weakness

- What are your weaknesses?
- What do your competitors do better than you?

#### Threat

- Do you have solid financial support?
- What trends may negatively impact you?

**Do** 

- Congratulate everyone for the class activity.
- Ask the audience to applaud for themselves.
- Allot the participants sufficient time to complete this activity, but do keep a check on time.
- Ask de-brief questions to cull out information from the participants.

**Ask** **De-brief questions:**

- What are your weaknesses according to your SWOT analysis?
- Do you think you can change your weakness into strength? How?
- Do you think you can work on your threats? How?

**Summarize** 

- Close the discussion by summarizing ways to identify business opportunities within your business.
- Ask the participants what they have learned from this exercise.
- Ask if they have any questions related to what they have talked about so far.

## UNIT 10.5.6: Entrepreneurship Support Eco-System

### Unit Objectives

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

- Explain the meaning of entrepreneur
- Describe the different types of entrepreneurs
- List the characteristics of entrepreneurs
- Recall entrepreneur success stories
- Discuss the entrepreneurial process
- Describe the entrepreneurship ecosystem
- Discuss the purpose of the 'Make In India' campaign
- Discuss the key schemes to promote entrepreneurs

### Resources to be Used

- Participant Handbook
- Chart papers
- Marker pens
- Pencils
- Colour pencils
- Scale
- Eraser
- Other requisite stationery material

### Ask

- Do you think that entrepreneurs need support?
- What do you think is an eco-system?
- What do you think 'entrepreneurship support eco-system' means?

### Say

- Let's learn what entrepreneurship support eco-system means.
- Discuss 'Entrepreneurship Support Eco-System' as given in the Participant Handbook.

### Ask

- Can you define entrepreneurship support eco-system?
- What are the key domains of the support eco-system?

### Say

- Let's learn more about these domains by conducting an activity.
- You have to make a poster showing the components of the six main domains of entrepreneurship support eco-system.

### Team Activity

- Making a poster showing the entrepreneurship support eco-system.

**Do** ✓

- Divide the class into groups of four or six.
- Hand out chart paper and coloured pens.
- Explain the purpose and duration of the activity.
- Go around checking the progress of each group.
- Set guidelines pertaining to discipline and expected tasks.

**Activity De-brief**

Ask each group to display their poster and explain the key domains of entrepreneurship support eco-system.

**Ask** 🗣️

- What kind of government support eco-system is available for entrepreneurs in India?

**Say** 🗣️

- Discuss 'Make in India' campaign as given in the Participant Handbook.

**Team Activity** 👥

- Presentation on key schemes to promote entrepreneurs

**Do** ✓

- Divide the class into pairs.
- Number each pair from 1-15.
- Assign a scheme, same as their group number, to each group.
- Ask them to read the scheme carefully and present it to the class.
- Explain the purpose and duration of the activity.
- Go around checking the progress of each group.
- Set guidelines pertaining to discipline and expected tasks.

**Activity De-brief**

- Ask each group to explain the scheme offered by government to promote entrepreneurs.

**Summarize** 📄

- Summarize the unit by discussing the key points and answering questions the participants may have.

## UNIT 10.5.7: Risk Appetite & Resilience

### Unit Objectives

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

- Discuss the relationship between entrepreneurship and risk appetite
- Discuss the relationship between entrepreneurship and resilience
- Describe the characteristics of a resilient entrepreneur

### Resources to be Used

- Participant Handbook
- Chart papers
- Blank sheets of paper
- Pens
- Marker pens

### Ask

- Can you define risk or explain what constitutes a risk?
- What do you people mean when they say, "This may be a risky proposition"?
- What risks are they talking about?

### Example

- Let's have a look at these two examples:

Rohit and his family were travelling by car from Delhi to Nainital. It was their second trip there. Rohit was familiar with the road. His friends told him that the highway after Rampur was in a bad condition. They advised him to take a shortcut and turn left from Moradabad and take the Kaladhungi road. This road is in a better condition.

Since he was going with his family, and did not want to take the risk of getting lost, he left early. He took the Kaladhungi road and reached Nainital well in time.

Suresh and his family too were travelling by car from Delhi to Nainital. It was their second trip there. His friends too advised him to take a shortcut and turn left from Moradabad and take the Kaladhungi road as this road was in a better condition.

Suresh too decided to take the Kaladhungi road but he left Delhi in the afternoon. It was dark by the time he reached Kaladhungi, and he was sure that he was taking the correct turn. As it was late, he could not find anyone to give him directions. He ended up being in an unknown place that was scarcely inhabited.

### Say

- Let's see what type of risks Rohit and Suresh took.
- Discuss 'Risk Appetite and Resilience' with the participants as given in the Participant Handbook.

### Say

- Let's learn more about risk appetite and resilience with the help of an activity.

## Team Activity

### Risk Appetite

- This is a group activity.

- In the previous unit, you read success stories of Mr Dhirubhai Ambari and Dr Karsanbhai Patel.
- Mr Ambari left his job and started his company Reliance with just Rs. 50,000/-.
- Dr Patel kept his job, went door-to-door to sell Nirma, and only when the brand started gaining popularity did he start his own company.
- What types of risk did both of them take?
- What risk factors, do you think, did they keep in mind before launching their company?
- Write the Risk Appetite Statement of both the companies.

### Activity De-brief

- Who took a greater risk?
- What are the differences between the Risk Appetite Statement of both the companies?

## Do

- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper.
- Tell the participants that they have to evaluate the risks taken by Mr Dhirubhai Ambari and Dr Karsanbhai Patel.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

## Ask

- Do you think all entrepreneurial ventures are successful?
- What happens if the first venture is not successful?
- Should the entrepreneur stop when faced with challenges or face them?

## Example

- Let's have a look at the following example:

Vijay Shekhar Sharma is the founder of Paytm, which is a giant Indian e-commerce. He was born in a middle-class family in Uttar Pradesh. He started his first job at an MNC. He quit after six months and built a company One97 with his friends. As One97 grew bigger, it needed more money because it was running more servers, bigger teams, and had to pay royalty. At that time, the tech bubble popped and technology companies were running in losses. Finally, money ran out. So One97 took loans and then more loans at higher rates of interest, as high as 24 per cent, and became caught in a vicious cycle.

In 2014, Paytm was launched with online wallet services after which, the company enabled online payment transactions. The company got licenses from RBI in 2016 to launch India's first ever payment bank. Moreover, the main motive of Paytm was to transform India into a cashless economy.

After demonetization came into effect, Vijay Shekhar Sharma started promoting online and digital transactions to deal with the cash crunch. In fact, the service of the company's mobile wallet is accepted across India. The logo of Paytm is now popular almost everywhere from tea stalls to major companies.

**Say** 

- Let's see what qualities made Vijay Shekhar Sharma a resilient entrepreneur.
- Discuss Entrepreneurship and Resilience with the participants as given in the Participant Handbook.

**Say** 

- Let's learn more about entrepreneurship and resilience with the help of an activity.

**Team Activity** **Entrepreneurship and Resilience**

- This is a group activity.
- Think of some entrepreneurship ventures that faced challenging times, but later resulted in success stories.
  - Who is the founder of that company?
  - What challenging times did it face?
  - How did it overcome those challenges?
  - List the resilient characteristics of the entrepreneur.

**Activity De-brief**

- Each group to give their presentation.
- Why did you choose this company?
- What is the success story of the company?

**Do** 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper.
- Tell the participants that they have to think of an entrepreneur who faced challenging times, but eventually succeeded.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Summarize** 

- You can summarize the key points of the unit.
- Ask the participants what they learned from the activities.
- Clarify any questions or doubts they might have.

## UNIT 10.5.8: Success and Failures

### Unit Objectives

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

- Discuss how to deal with failure

### Resources to be Used

- Participant Handbook

### Ask

- Have you heard the quote 'nothing is impossible'?
- What do you think it means?
- Do you think that all successful entrepreneurs became famous overnight or did they have to struggle or face failure before succeeding?

### Example

- Let's have a look at this example.

Shah Rukh Khan, also known as, SRK or King Khan is a force to reckon with. Did he achieve stardom overnight? Shah Rukh Khan, who has seen many struggles in his life – he has slept on streets, struggled to support himself and his sister at a very young age, and lost his parents very early in life, which led to his sister seeking mental health support. Amidst all the chaos and challenges, he kept pushing himself, and today he stands tall as the 'Badshah of Bollywood'. Certainly those years were not easy for him.

When he was young, he stood at Marine Drive and said, "I will rule this city one day". Failure was not just his companion during or before his stardom, it is still a substantial part of his life. Success does not come easy. What made him a star was his acceptance of failure and the urge to improve.

### Say

- How do you define success and failure?
- What is fear?
- Discuss "success and failure" with the participants as given in the Participant Handbook.

### Ask

- Have you felt or experienced fear?
- What led you to feel that emotion?
- How did you handle it?

### Say

- Let's learn the about success and failure with the help of an activity.

## Team Activity

- Divide the class into groups of four.
- Instruct them to think of one scenario where they have to interview a successful entrepreneur.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.
- They have to choose one person from the group as the interviewee and one as the interviewer.
- Go around and make sure they have understood what is to be done and are discussing the roles properly.
- Check that everyone understands their role. Give clarifications if needed. Give the participants about 5 minutes to discuss and decide their roles.
- Ask the groups to stop the discussion as soon as the time is over.
- Invite each group one by one to come and present their interview as a role play.

## Notes for Facilitation

### Facilitating Role Plays

#### Preparing for the activity

1. Carefully review the details of the scenario and the character descriptions.
2. Become familiar with the key issues being addressed in the scenario.
3. Study the provided material so that you are ready to address issues related to the situations depicted in the role plays.
4. Anticipate potential questions that might be raised by the participants and be ready to address them.

#### Conducting the activity

1. Introduce the activity. Emphasize that role playing provides participants with an opportunity to apply their new knowledge, skills, and tools in situations that simulate actual interactions with customers.
2. Ask participants to form pairs. Direct the members of each group to choose who will play the roles. Remind the groups that each participant should be given the opportunity to play/practice the different roles.
3. Conduct a demonstration so that participants become familiar with the expectations related to the roles and support materials.
4. To maintain spontaneity of the interactions during the role play, ask the participants not to discuss the details of their roles prior to the role play.
5. Give the pairs 15-20 minutes to conduct the role play.
6. Circulate among the groups to answer any questions that may arise and provide guidance as needed.
7. After all the pairs have finished with the role play, conduct a de-briefing session on each role play.
8. Ask the groups to take five minutes to talk about what happened during the role play. The groups should discuss the questions given in the de-briefing for each role play. Encourage participants to provide constructive criticism during their discussions.
9. Conclude the activity by asking participants to think about whether and how they might use scripted role plays in their real life.

## Summarize

- Wrap the unit up after summarizing the key points and answering questions.





## UNIT 10.6: Preparing to be an Entrepreneur

### Key Learning Outcomes



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

1. Discuss how market research is carried out
2. Describe the 4 Ps of marketing
3. Discuss the importance of idea generation
4. Recall basic business terminology
5. Discuss the need for CRM
6. Discuss the benefits of CRM
7. Discuss the need for networking
8. Discuss the benefits of networking
9. Discuss the importance of setting goals
10. Differentiate between short-term, medium-term and long-term goals
11. Discuss how to write a business plan
12. Explain the financial planning process
13. Discuss ways to manage your risk
14. Describe the procedure and formalities for applying for bank finance
15. Discuss how to manage their own enterprise
16. List the important questions that every entrepreneur should ask before starting an enterprise

## UNIT 10.6.1: Market Study/ The 4Ps of Marketing/ Importance of an IDEA: Understanding Market Research

### Unit Objectives

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

- Discuss how market research is carried out
- Describe the 4 Ps of marketing
- Discuss the Importance of Idea generation

### Resources to be Used

- Participant Handbook
- Chart papers
- Markers pens
- Blank sheets of paper

### Ask

- Suppose, you want to open a restaurant, what are the factors you will consider?
- How will you promote your restaurant?

### Example

- Let's have a look at this example.

Arjun was an MBA working in a company. But he wanted to start a low cost budget hostel for foreign tourists coming to India. He did a lot of market research before starting the project. Based on the information he gathered, he made his business plan. His hostel is now flourishing and he is thinking of expanding to other tourist destinations.

### Say

- Discuss "Market Study" with the participants. Refer to the Participant Handbook.
- Let's learn about market study and research with the help of an activity.

### Team Activity

#### Market Study

- This is a group activity.
- You want to start your own tuition centre.
- What type of research will you do?

#### Activity De-brief

- Ask each group to come forward and give a brief presentation.
- Encourage other groups to be interactive and ask questions.
- What factors did you keep in mind while doing your research?
- Based on our research would you go ahead and open a tuition centre?

**Do** 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4 or 6.
- Give each group a chart paper.
- Tell the participants that they have to start their own tuition centre.
- Give the participants 10 minutes to discuss and write the research work they need to do.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Say** 

- By opening a tuition centre you are offering a service.

**Ask** 

- What factors will you keep in mind before opening it?

**Say** 

- Discuss "The 4Ps of Marketing" with the participants as given in the Participant Handbook.

**Say** 

- Let's learn about the 4Ps of Marketing with the help of an activity.

**Team Activity** **4 Ps of Marketing**

- This is a group activity.
- You have to sell a pen to four different segments:
  1. Rural villagers
  2. Rural middle class
  3. Urban middle class
  4. Upper end rich people (Niche market)

Keeping the 4Ps of Marketing in mind, what marketing strategy will you design to sell the pen?

**Activity De-brief**

- Ask each group to present their strategy.
- Encourage other groups to be interactive and ask questions.

**Do** 

- Instruct the participants that this is group work.
- Divide the class into four groups.
- Give each group a chart paper.
- Assign each group a target audience for selling the pens:
  1. Rural villagers
  2. Rural middle class
  3. Urban middle class

#### 4. Upper end rich people

- Tell the participants that they have to design a marketing strategy keeping the 4Ps of Marketing in mind.
- Give the participants 20 minutes to discuss and come up with their strategy.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit

#### Activity De-brief

- Ask each group to come forward and give a brief presentation.
- Ask each group what they kept in mind while designing their marketing strategy.
- Encourage other groups to be interactive and ask questions.

#### Say

- Each entrepreneur has an idea of wants he wants to sell. It may be a service or a product.
- Discuss "Importance of an IDEA" as given in the Participant Handbook.

#### Summarize

- Summarize the key points of the unit.
- Ask the participants what they learnt from the activities.
- Encourage them to ask if they have any doubts.

## UNIT 10.6.2: Business Entity Concepts

### Unit Objectives

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

- Recall basic business terminology

### Resources to be Used

- Participant Handbook

### Say

- Let's recall some basic business terminology.
- Discuss the Business Entity Concepts as given in the Participant Handbook.
- Let's learn some basic business terminology by having an activity.
- We will have a quiz today.

### Activity

- The activity is a quiz.

### Do

- Divide the class in two groups and give a name to each group.
- Explain the rules of the quiz. For each correct answer the group gets 1 mark.
- If the group is unable to answer the question is passed to the next group.
- Explain the purpose and duration of the activity.
- Ask the questions of the quiz.
- Keep a score of the groups.
- Set guidelines pertaining to discipline and expected tasks.

### Summarize

- Summarize the unit by discussing the key points.

### Notes for Facilitation

#### QUESTIONS FOR THE QUIZ

1. What does B2B mean?

*Business to business*

2. What is a financial report?

*A comprehensive account of a business' transactions and expenses*

3. Who is a sales prospect?

*A potential customer*

4. How is working capital calculated?

*Current assets minus current liabilities*

5. What is an estimation of the overall worth of a business called?

*Valuation*

6. You are buying a house. What type of transaction is it?

*Complex transaction*

7. How will you calculate the net income?

*Revenue minus expenses*

8. How is Return on Investment expressed?

*As percentage*

9. How will you calculate the cost of goods sold?

*Cost of materials minus cost of outputs*

10. What is revenue?

*Total amount of income before expenses are subtracted.*

11. What is a Break-Even Point?

*This is the point at which the company will not make a profit or a loss. The total cost and total revenues are equal*

12. What is the formula used to calculate simple interest?

*$A = P(1 + rt)$ ;  $R = r * 100$*

13. What are the three types of business transactions?

*Simple, Complex and Ongoing Transactions*

14. The degrading value of an asset over time is known as \_\_\_\_\_.

*Depreciation*

15. What are the two main types of capital?

*Debt and Equity*

## UNIT 10.6.3: CRM & Networking

### Unit Objectives

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

- Discuss the need for CRM
- Discuss the benefits of CRM
- Discuss the need for networking
- Discuss the benefits of networking

### Resources to be Used

- Participant Handbook

### Ask

- Can your business run without customers/buyers?
- Who is the most important entity in any business?

### Say

- The key to every success business lies on understanding the customer's expectations and providing excellent customer service.
- Discuss about CRM and its benefits. Refer to the Participant Handbook.
- Providing excellent customer service entails:
  - Treating your customers with respect.
  - Be available as per their need/s schedule.
  - Handling complaints effectively.
  - Building long lasting relationships.
  - Collecting regular feedback.
- Handle customer complaints proactively. Ask "what happened", "why it happened", "how can it be avoided next time", etc.
- Collecting feedback from the customers regularly will enable you to improve your good/service.
- "Let's understand it better with the help of some case scenarios. You will be given some cases within your groups. You have to analyse the case scenario that has been given to you and then find an appropriate solution to the problem."

### Do

- Divide the class into four groups of maximum six participants depending on the batch size.
- Give one case study to each group.
- Instruct them to read the case carefully.
- The group is expected to analyse and discuss the case amongst them and find a solution to the given problem.
- Put down the discussion points (de-brief questions) on the board. Give the class 5-10 minutes to discuss the case and note down their solutions.
- At the end of 10 minutes, the team should present their case solution to the class.

## Team Activity

### Case Study Analysis

Raju runs a business of wooden furniture. He has a huge list of customers on Facebook and WhatsApp who give him orders regularly. Ankita is one of his old and regular customers. She placed an order for a new chester and TV cabinet via WhatsApp and requested Raju to send them as soon as possible. When the parcel reached Ankita through courier she found that chester was broken and the TV unit was chipped from the bottom. Ankita was heartbroken. It was a complete waste of money. She sent a message to Raju on WhatsApp, expressing her anger and disappointment. Raju might lose an old customer forever if he doesn't satisfy the customer. What should Raju do to retain his customer?

#### Scenario 2

Rajni runs a boutique shop. She sells suits and sarees. She is one of the most successful designer in her city. Rajni swears that all the clothes in her boutique have unique designs. Smita has to attend her cousin's wedding; she goes to Rajni's boutique to buy a saree. Smita wanted a unique designer saree. Rajni customized a saree for her and sent it over the courier. When Smita had a look at the saree she realised her two friends had the same design sarees. She sent a message to Rajni on WhatsApp, expressing her anger and disappointment. Did Rajni make a false promise? Were her designs copied? What could happen to Rajni's image after this incident? What would you do if you were in Rajni's place?

#### Scenario 3

Shama is a beautician who offers parlour services to ladies by making home visits. Recently, Shama got her name registered on an e-commerce website. Two days earlier, she got a message from Mrs Sushma. The appointment was fixed for next day, 11:00 am and the remuneration for the services was decided beforehand. When Shama reached there at 10:50 am, Mrs Sushma was not at home. When Shama called her, she asked her to wait for a while. Mrs Sushma reached home at 11:45 am. Meanwhile, Shama had to reschedule her next appointment. After availing Shama's services, Mrs Sushma refused to pay the requisite amount and started finding faults in the services provided by her. Who was at fault in this scenario? What should you do in case the customer behaves unreasonably? What would you do if you were in Shama's place?

#### Scenario 4

Shallender is the manager of a car showroom. He proactively takes part in all the transactions that happen in his showroom. Vinita wants to buy a new car. She has chosen a car from Shallender's showroom. The salesperson has given her a very good discount and has also promised free service for one year. Vinita goes to the showroom and asks to complete all the formalities to purchase the car. When she sees the final bill she realize that she has not received the promised discount neither was there any mention of the free services. She immediately demands to see the Shallender. When Shallender's head asks how much discount Vinita was promised, he realised the discount will make the sale in loss. The car showroom owner might lose a customer and deal due to false commitments made by his manager. Besides, the customer might tell this to other people, creating a bad name and image for the showroom. If you owned that showroom, how would you have convinced your customer?

## Say

- Now, let's discuss the problem and solution with the class.
- The group will first briefly describe the case to the class.
- Then discuss the issue identified and the proposed solution.
- Present the solution as a role play.
- Post presentation, the other groups may ask questions from the group that has presented.

**Do** 

- Congratulate each group for the presentation/ role play.
- Ask the audience to applaud for them.
- Keep a check on time. Tell the group to wind up the discussion quickly if they go beyond the given time limit.

**Say** 

- If your customers are happy with you they will give referrals which will help to grow your business.
- One more way of growing business is 'Networking'.
- Discuss Networking and its benefits. Refer to the Participant Handbook.

**Activity** **Group Discussion**

- Conduct a group discussion in the class on how they can do networking for their business.

**Summarize** 

- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the Importance of CRM and Networking for entrepreneurs.
- Close the discussion by summarizing the Importance of CRM and Networking for entrepreneurs.

## UNIT 10.6.4: Business Plan: Why Set Goals?

### Unit Objectives

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

- Discuss the Importance of setting goals
- Differentiate between short-term, medium-term and long-term goals
- Discuss how to write a business plan
- Explain the financial planning process
- Discuss ways to manage your risk

### Resources to be Used

- Participant Handbook
- Chart papers
- Blank papers
- Marker pens
- Ruler

### Ask

- Remember we had written SMART Goals in a previous session? Let's try and recall why it is important to set goals?
- While framing SMART goals, we talked about 'T' in SMART, which was 'Time Bound'? What do we mean by time bound goals?
- What time limit did you set for your goal- 3 weeks, 3 years, 10 years?

### Say

- Talk about short term, long term and medium term goals, as discussed in the Participant Handbook.

### Ask

- As you are planning to become an entrepreneur, you must have thought of an idea for a start-up. What is your business idea?

### Do

- Ask few participants to share their business ideas.

### Ask

- Have you created a business plan for your business idea?
- Do you think it is important to have a business plan in place? Why/why not?

### Say

- Talk about 'Why Create a Business Plan' as discussed in the Participant Handbook.
- Let's understand it better with the help of an activity.

## Team Activity

### Writing a Business Plan

- This is a group activity.
- Give the groups the required resources such as chart paper and markers.
- This activity is divided into two parts:
  1. Create a business idea
  2. Develop a business plan
- The group will discuss and come up with a new business idea and present their idea to the class.
- In the second part of the activity the group will develop a business plan for the business idea.
- The business plan prepared will be presented by the groups to the class.

<b>MY BUSINESS PLAN</b>
<b>Executive Summary: What is your Mission Statement?</b>
<b>Business Description: What is the nature of your business?</b>
<b>Market Analysis: What is your target market?</b>
<b>Organization and Management: What is your company's organizational structure?</b>
<b>Service or Product Line: What is the lifecycle of your product/service?</b>
<b>Marketing and Sales: How will you advertise and sell your products?</b>
<b>Funding Request: How much fund is required and from where?</b>

## Say

- Teams will need to brainstorm for this part of the activity.
- Use the blank papers for the second part of this activity
- Make your business plan on a chart paper based on the following parameters:
  1. Executive Summary
  2. Business Description
  3. Market Analysis
  4. Organization and Management
  5. Service or Product Line
  6. Marketing and Sales
- Explain each parameter in detail as done in the Participant Handbook.
- Discuss each parameter with the business idea examples of the groups.
- Groups will discuss and develop the business plan for their business idea.

**Say** 

- Now, let's share our plan with the class.
- Each group will briefly describe the plan to the class.
- Post presentation, the other groups may ask questions to the group who have presented their plan.

**Do** 

- Congratulate each group for sharing their points.
- Ask the audience to applaud for them.
- Keep a check on time. Tell group to wind up the discussion quickly if they go beyond the given time limit.

**Say** 

- Along with a business plan, you need to create a financial plan and evaluate the risk involved with your start up.
- Discuss 'Financial Planning' and 'Risk Management' in detail as given in the Participant Handbook.

**Summarize** 

- Ask the participants what they have learnt from this exercise/ activity.
- Ask if they have any questions related to what they have talked about so far.

**Notes for Facilitation** 

- Keep the business plan format ready in a flipchart to display it during the activity.

## UNIT 10.6.5: Procedures and Formalities for Bank Finance

### Unit Objectives

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

- Describe the procedure and formalities for applying for bank finance

### Resources to be Used

- Participant Handbook
- Bank loan/finance form sample

### Ask

- While preparing a business plan in the last session, we discussed financial planning to arrange financial resources for your start-up. Therefore, how will you collect funds to start your business?

### Say

- While most entrepreneurs think 'product' is the most difficult thing to decide for a business, start-up capital poses an even a bigger obstacle. Though there are various ways of funding the business, to convince investors to invest money is the most challenging.
- Some of the funding options available in India are:
  - **Bootstrapping:** Also called self-financing is the easiest way of financing
  - **Crowd funding:** Funds are collected by consumers pre-ordering or donating for starting the business.
  - **Angel investors:** Individual or group of investors investing in the company
  - **Venture capitalists:** Venture capitals are professionally managed funds who invest in companies that have huge potential. They usually invest in a business against equity.
  - **Bank loans:** The most popular method in India.
  - **Microfinance Providers or NBFCs**
  - **Government programmes**
- Let us now discuss the most popular method i.e. bank finance in detail here.

### Do

- Discuss the list of documents that are required to apply for a loan like letter of introduction, business brochure, references of other banks, and financial statements.
- Explain the details to be filled in a loan application form.
- Divide the class into groups. Give each group a loan application form.
- Ask the groups to discuss and fill the form.

### Summarize

- Close the discussion by summarizing the important documents needed for bank loan.
- Ask the participants if they have any questions related to what they have talked about so far.

## Notes for Facilitation



- Checklist of documents is provided as resources for the session.
- You can make some copies and distribute it during the group activity.
- Download sample loan application forms from any nationalised bank's website. Print sufficient copies to circulate it amongst the groups.

<b>CHECKLIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH LOAN APPLICATION (Common for all banks)</b>
1. Audited financial statements of the business concern for the last three years
2. Provisional financial statements for the half – year ended on _____
3. Audited financial statements of associate concern/s for the last three years
4. Copy of QIS II for the previous quarter ended on _____
5. Operational details in Annexure I
6. CMA data for the last three years, estimates for current year and projection for the next year
7. Term loan/DPG requirements in Annexure II
8. List of machinery in respect of machinery offered as security in Annexure III
9. Additional details for export advances furnished in Annexure IV
10. Property statements of all directors/partners/proprietor/guarantors
11. Copies of ITAO of the company for the last three years
12. Copies of ITAOs/WTAOs of the directors/partners/proprietor and guarantors
12. Copies of certificate from banks and financial institutions certifying the latest liability with them
14. Copy of board resolution authorizing the company to apply to your bank for the credit facilities mentioned in application
15. Copy of memorandum and article of association (in case of limited company)/partnership deed (in case of partnership firm)
16. Cash budget for the current year and next year in case of contractors and seasonal industries

## UNIT 10.6.6: Enterprise Management – An Overview: How to Manage Your Enterprise?

### Unit Objectives

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

- Discuss how to manage their own enterprise

### Resources to be Used

- Participant Handbook

### Ask

- Having set-up a business, do you think it is possible to do everything on your own?
- Does one require trained persons for help?
- What does management mean?

### Say

- Let's have a look at this example:

Kapil had a small business that was beginning to pick up pace. He wanted to expand his business, and therefore employed few more people. One day, as he was walking past Ramesh, one of his new employees, he overheard Ramesh talking rudely to a customer on the phone. This set him thinking. Kapil realised that he should have regular team meetings to motivate his employees and speak with them about any problems they might be facing during work. He should also conduct training sessions on new practices, soft skills, and technology, and develop work ethics manual for managing his enterprise.

### Say

- Was Kapil correct in his approach or he should have scolded Ramesh instantly in front of his other employees?
- Discuss "Enterprise Management—An Overview" with the participants as given in the Participant Handbook.

### Say

- Let's learn how to effectively manage an enterprise or business through an activity.

### Team Activity

#### Enterprise Management

- This is a group activity.
- Design a matrix listing the topics and key words that are needed to run an enterprise effectively and smoothly.

#### Activity De-brief

- Have each group present their matrix.
- Encourage participants of the other groups to ask question about each other's presentation.

**Do** 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper and coloured pen.
- Tell the participants that they have to make a matrix they need to fill.
- They have to write the main topics and key words that will help them effectively manage their enterprise.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

**Summarize** 

- Ask the participants what they have learned from this exercise/activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the importance of effective management to run an enterprise as given in the Participant Handbook.

## UNIT 10.6.7: 20 Questions to Ask Yourself before Considering Entrepreneurship

### Unit Objectives

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

- List the important questions that every entrepreneur should ask before starting an enterprise

### Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

### Ask

- Why do you want to become an entrepreneur?

### Say

- It is very important to know why you want to become an entrepreneur. Your personal goals for becoming an entrepreneur play a key role in the success of your business. Your goals should be clear well before you start your business.
- Apart from the goals, the other aspects of business that you need to bear in mind are the potential problems that you may face to set-up, your areas of interest, and all the other dimensions of the business.
- Let's understand it better with the help of some questions that every entrepreneur should ask before starting their own business.
- Open the Participant Handbook section named '20 Questions to Ask Yourself Before Considering Entrepreneurship'. You have to answer the questions individually.
- Then, we will have a class discussion on all the questions.

### Do

- Read out the questions one by one in front of all the participants.
- Participants have to answer all the one by one questions.
- Give the class 10-15 minutes to note down their answers.
- At the end of 15 minutes, open the discussion for all the questions.
- Moderate the discussion by focusing on the relevant points.
- Keep a check on time and don't let the discussion get sabotaged or lose track of time. Ensure all the questions are covered and discussed.

### Summarize

- Ask the participants what they have learned from this exercise/activity.
- Ask if they have any questions related to what they have talked about so far.

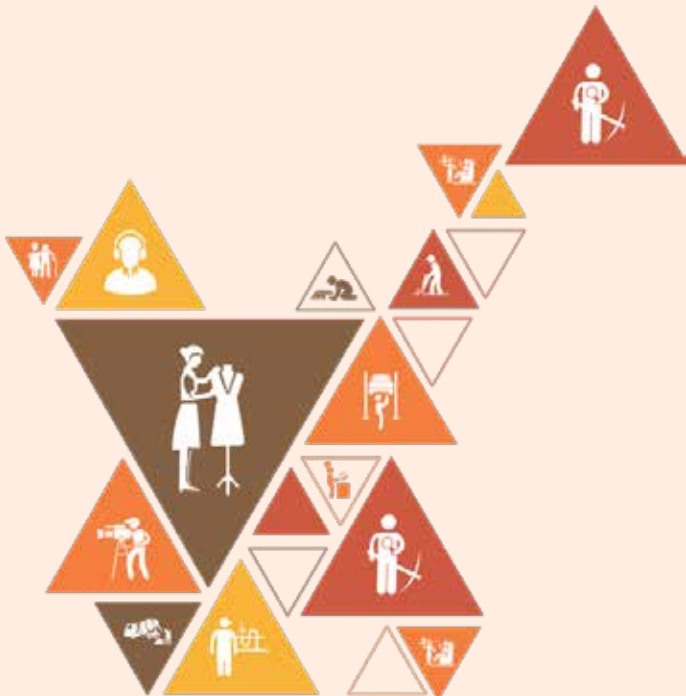




# 11. Annexures

Annexure I: Training Delivery Plan

Annexure II: Assessment Criteria



## Annexure I

### Training Delivery Plan

Training Delivery Plan			
<b>Program Name:</b>	Certificate Course in Fitter- Instrumentation		
<b>Qualification Pack Name &amp; Ref. ID</b>	Fitter-Instrumentation - ISC/Q1102		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	30-12-2015
<b>Pre-requisites to Training (if any)</b>	Minimum qualification – 10th Pass		
<b>Training Outcomes</b>	<p><b>By the end of this program, the participants will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Carry out maintenance activities under the guidance and supervision of Technician Instrumentation</li> <li>2. Periodically check measuring equipment for operation and ensure proper calibration</li> <li>3. Use basic health and safety practices at the workplace</li> <li>4. Work effectively with others</li> </ol>		

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/ Aids	Duration
1	Over view of Iron & Steel Industry	Icebreaker	<ul style="list-style-type: none"> <li>• Introduce each other</li> <li>• Build rapport with fellow students and the facilitator</li> </ul>		Group Activity: Passing the Parcel	Available objects such as a book, pen, duster etc.	1.0 hour
2	Over view of Iron & Steel Industry	Overview of steel industry and steel industries in India	<ul style="list-style-type: none"> <li>• Understanding Iron &amp; steel industry</li> <li>• Understanding types of Iron &amp; Steel Industry</li> <li>• Understanding products of Iron &amp; Steel industry</li> <li>• Activities in Iron &amp; Steel Industry</li> </ul>	NA	Facilitator-led-discussion Videos	PPTs of Iron and steel manufacturing, Charts showing the same	7.0 hrs

3	Occupational, Health and Safety (OHAS)	Hazards at the site, control measures, PPE, safe working at heights and confined spaces, safe working practices	<ul style="list-style-type: none"> <li>• Understanding the Occupational health &amp; Safety</li> <li>• Understand What is hazard</li> <li>• Working at Heights, confined spaces</li> </ul>	ISC/N0008 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC12, PC13, PC25, PC26 KB3, KB4, KB5, KB6, KB7, KB8, KB9, KB10, KB11, KB12, KB13.	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPTs for OHAS related to Job Role, Display Material for PPEs related to Job Role, Safety Material	13 hrs
4	Occupational, Health and Safety (OHAS)	Problem escalation, escalation matrix, accident reporting	<ul style="list-style-type: none"> <li>• Documentation for Health and safety</li> <li>• Problem escalation</li> </ul>	ISC/N0008 PC25, PC26 KB21, KB22	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPTs for OHAS related to Job Role, Display Material for PPEs related to Job Role, Safety Material	3 hours
5	5S & House keeping	5S safety system, waste management and housekeeping practices	<ul style="list-style-type: none"> <li>• Identification of bottlenecks in functioning of work place</li> <li>• Various methods of housekeeping both pre-work &amp; post-work as well</li> </ul>	ISC/N0008 PC10, PC11, PC12	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPTs of 5S, Display Charts of 5S, Audit Checklists of 5S	8 hrs
6	Carry out maintenance activities under the guidance and supervision of Technician	Working and elaboration of different type of instruments	<ul style="list-style-type: none"> <li>• Performing repeated activities under guidance</li> <li>• Fixing transducers &amp; pickup devices properly</li> <li>• Interim reporting to Supervisor wherever/ whenever needed</li> <li>• Work wise recognition of tools</li> </ul>	ISC/N1102 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC17, PC18, PC19 KA, KA2, KA3, KA4, KA5, KA6, KA7, KA8, KA9 KB1, KB2,	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPTs of various hand tools and display of gauges, thermocouples, load cells, calibration tools & precession measuring instruments, mechanical governors	124 hrs

			<ul style="list-style-type: none"> <li>• Diagnosing the common defects of tools</li> <li>• Using of hand tools</li> <li>• Using of measuring instruments</li> </ul>	KB3, KB4, KB5, KB6, KB7, KB8, KB9, KB10, KB11, KB12, KB13, KB14, KB15, KB16, KB17, KB18, KB19, KB20, KB21, KB22			
7	Periodically check measuring equipment for operation and ensure proper calibration	Maintenance of measuring instruments, calibration methods of instruments	<ul style="list-style-type: none"> <li>• Checking equipment for correct operation</li> <li>• Testing measure and control equipment</li> <li>• Analysing and reporting test results</li> <li>• Calibrating measure and control equipment</li> <li>• Escalating unsolved problem as per protocol</li> <li>• Giving interim feedback to Technician Instrumentation, in case of delays</li> <li>• Process compliances</li> </ul>	ISC/N1103 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC17, PC18, PC19, PC20, PC21, PC22, PC23  KA, KA2, KA3, KA4, KA5, KA6, KA7, KA8, KA9, KA10  KB1, KB2, KB3, KB4, KB5, KB6, KB7, KB8, KB9, KB10, KB11, KB12, KB13, KB14, KB15, KB16, KB17, KB18, KB19, KB20, KB21, KB22, KB23, KB24, KB25, KB26, KB27, KB28, KB29, KB30, KB31, KB32, KB33, KB34, KB35, KB36	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPTs of various hand tools and display of gauges, thermocouples, load cells, calibration tools & precession measuring instruments, mechanical governors	124 hrs

8	Use basic health and safety practices at the workplace	Fire safety, use of fire extinguisher, fire drill, emergency rescue and first aid techniques	<ul style="list-style-type: none"> <li>• Health and safety procedures</li> <li>• Fire safety procedures</li> <li>• Emergencies, rescue and first aid procedures</li> </ul>	ISC/N0008 PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC22, PC23, PC24, KB14, KB15, KB16, KB17, KB18, KB19, KB20	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	PPE, Different Type of Safety Sign, First Aid Box, Safety instrument and clothing, Step Ladder, Sample Accident reports, Fire Extinguishers, Items required for fire extinguisher and fire Safety	12 hrs
9	Work effectively with others	Effective communication, team work, workplace etiquettes	<ul style="list-style-type: none"> <li>• Ensure appropriate communication with superiors, peers and others as applicable at work place</li> <li>• Demonstrate appropriate behaviour and etiquette at work place</li> </ul>	ISC/N0009 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, KA1, KA2, KA3, KA4	<ul style="list-style-type: none"> <li>• Facilitator-led-discussion</li> <li>• Skill Practice (Activity)</li> </ul>	Communication skills PPTs, Posters Team management posters	8 hrs

## Annexure II

### Assessment Criteria

#### CRITERIA FOR ASSESSMENT OF TRAINEES

<b>Assessment Criteria for Fitter – Levelling, balancing and alignment</b>	
<b>Job Role</b>	<b>Fitter-Instrumentation</b>
<b>Qualification Pack</b>	<b>ISC/Q1102</b>
<b>Sector Skill Council</b>	<b>Indian Iron &amp; Steel Sector Skill Council</b>

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on these criteria.
5	To pass the Qualification Pack , every trainee should score a minimum of 60% in every NOS.
6	In case of successfully passing only certain number of NOS's, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.

Assessment outcome (NOS Code and Description)	Assessment criteria (PC)	Total Marks	Out Of	Marks Allocation	
				Theory	Skills Practical
1. ISC/N1102: Carry out maintenance activities under the guidance and supervision of technician instrumentation	PC1. Confirm from “Technician Instrumentation” that the measuring device is functioning within tolerance limits	450	8	2	6
	PC2. In case of errors in reading, re-fix / re-position the pick-up till reading comes to the satisfying range		25	10	15

	PC3. Understand the characteristics of linking device so that no transmission errors take place due to intermediate losses / interference		22	12	10
	PC4. Identify and execute suitable rerouting of transmission system in case of need to achieve satisfactory results		20	10	10
	PC5. Activities for satisfactory performance: <ul style="list-style-type: none"> <li>• Maintenance procedures/ instructions/operator manuals/ working instructions</li> <li>• Preventive maintenance (routine inspections, and adjustments)</li> <li>• Corrective maintenance (activities identified from preventative maintenance activities)</li> <li>• Predictive maintenance (analysis of the equipment's condition)</li> <li>• Reactive maintenance (unexpected equipment/ component failure)</li> <li>• Maintenance prevention (equipment / component design and development)</li> <li>• Health and safety</li> <li>• Regulatory compliance</li> </ul>		70	20	50
	PC6. Re-connect and return the system to service on completion of activities		40	15	25
	PC7. Conduct maintenance activities within the limits of their personal & authority		15	5	10
	PC8. Carry out the maintenance activities in the specified sequence and in an agreed timescale		25	5	20
	PC9. Report any instances where the maintenance activities cannot be fully met or where there are identified defects outside the planned schedule		30	10	20
	PC10. Complete relevant maintenance documentation accurately		28	8	20

	PC11. Dispose of waste materials in accordance with safe working practices and approved procedures		20	5	15
	PC12. Re-position the pick-up / sensor to better location as advised by "Technician Instrumentation"		25	10	15
	PC13. Re-fix the pick-up / sensor with better fixing device / fastener as advised by "Technician Instrumentation"		28	8	20
	PC14. Monitor the problem and keep the superior informed about progress or any delays in resolving the problem		15	5	10
	PC15. Refer the problem to "Technician Instrumentation" or competent internal / external specialist if it cannot be resolved		15	5	10
	PC16. Obtain help or advice from specialist if the problem is outside candidate's area of competence or experience		15	5	10
	PC17. All the above activities are to achieve proper output on display from measuring monitoring instrument		15	5	10
	PC18. Since "Technician Instrumentation" is responsible for ultimate performance of measuring monitoring instrument, the ultimate objective of instrumentation fitter is to obtain satisfaction of "Technician Instrumentation"		20	5	15
	PC19. Comply with relevant SOPs		14	4	10
	<b>NOS Total Marks</b>	<b>Total</b>	<b>450</b>	<b>149</b>	<b>301</b>
<b>2.</b> <b>ISC/N1103:</b> <b>periodically</b> <b>check measuring</b> <b>equipment for</b> <b>operation and</b> <b>ensure proper</b> <b>calibration</b>	PC1. Appropriate checks are made of components, leads, fasteners, etc. for wear, loose connections or other faults	<b>300</b>	13	5	8

	PC2. Produce and update relevant testing/calibration schedules and plans.		13	5	8
	PC3. Carry out the testing/calibration activities in the specified sequence and in an agreed timescale		20	5	15
	PC4. Work/test requirements are identified and defined to standard operating procedures		12	2	10
	PC5. Inspect and test the operation of instruments and systems to diagnose faults using testing devices		30	10	20
	PC6. Correct test application principles are selected after inspection of instrumentation systems, equipment/components		15	5	10
	PC7. Appropriate test equipment is selected in accordance with defined requirements		25	5	20
	PC8. Device isolation methods/ requirements are observed and localised		15	5	10
	PC9. Appropriate test procedures and application principles are applied in assessing operation of instrumentation systems, equipment/components		15	5	10
	PC10. Report any instances where the testing/calibration activities cannot be fully met or where there are identified defects outside the planned schedule		25	10	15
	PC11. Complete relevant testing/ calibration documentation accurately		7	2	5
	PC12. Test results are analyzed/verified against operational specifications and localized faults are confirmed		15	5	10
	PC13. Potential and real faults are reported based on standard operating procedures		7	2	5
	PC14. Faulty conditions are evaluated and corrective action is planned		15	5	10
	PC15. Action plan is recorded and documented according to standard operating procedures		7	2	5

	PC16. Calibration of measuring and control equipment is assessed to manufacturers' specifications and/ or standard operating procedures		7	2	5
	PC17. Equipment is calibrated against appropriate physical standards using correct calibration devices, equipment, techniques using predetermined procedures		7	2	5
	PC18. Zero, span and range checks are undertaken on indicators/ controllers using correct and appropriate configuration		7	2	5
	PC 19. Wherever applicable, methods of adjustment using calibration devices are performed and documented to prescribed procedures and operational specifications		15	5	10
	PC20. Equipment is re commissioned in accordance with standard operating procedures		7	2	5
	PC21. Refer the problem to a "Technician Instrumentation" if it cannot be resolved		4	2	2
	PC22. Monitor the problem and keep the supervisor informed about progress or any delays in resolving the problem		4	2	2
	PC23. Comply with relevant SOPs		15	5	10
	<b>NOS Total Marks</b>	<b>Total</b>	<b>300</b>	<b>95</b>	<b>205</b>
<b>3.</b>	PC1. Use protective clothing/ equipment for specific tasks and work conditions	<b>150</b>	9	4	5
<b>ISC/N0008:</b>					
<b>Use basic health and safety practices at the workplace</b>					
	PC2. State the name and location of people responsible for health and safety in the workplace		6	1	5
	PC3. State the names and location of documents that refer to health and safety in the workplace		2	1	1
	PC4. Identify job-site hazardous work and state possible causes of risk or accident in the workplace		8	4	4

	PC5. Carry out safe working practices while dealing with hazards to ensure the safety of self and others state methods of accident prevention in the work environment of the job role		6	1	5
	PC6. State location of general health and safety equipment in the workplace		6	1	5
	PC7. Inspect for faults, set up and safely use steps and ladders in general use		6	1	5
	PC8. Work safely in and around trenches, elevated places and confined areas		6	1	5
	PC9. Lift heavy objects safely using correct procedures		6	1	5
	PC10. Apply good housekeeping practices at all times		2	1	1
	PC11. Identify common hazard signs displayed in various areas		6	5	1
	PC12. Retrieve and/or point out documents that refer to health and safety in the workplace		5	1	4
	PC13. Use the various appropriate fire extinguishers on different types of fires correctly		9	4	5
	PC14. Demonstrate rescue techniques applied during fire hazard		8	4	4
	PC15. Demonstrate good housekeeping in order to prevent fire hazards		2	1	1
	PC16. Demonstrate the correct use of a fire extinguisher		6	1	5
	PC17. Demonstrate how to free a person from electrocution		6	1	5
	PC18. Administer appropriate first aid to victims as required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.		8	3	5
	PC19. Demonstrate basic techniques of		6	1	5
	PC20. Respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments		7	2	5

	PC21. Perform and organize loss minimization or rescue activity during an accident in real or simulated environments		6	1	5
	PC22. Administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases		6	1	5
	PC23. Demonstrate the artificial respiration and the CPR Process		6	1	5
	PC24. Participate in emergency procedures		6	1	5
	PC25. Complete a written accident/incident report or dictate a report to another person, and send report to person responsible		4	1	3
	PC26. Demonstrate correct method to move injured people and others during an emergency		2	1	1
	<b>NOS Total Marks</b>	<b>Total</b>	<b>150</b>	<b>45</b>	<b>105</b>
<b>4.</b>	PC1. Accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	<b>100</b>	10	5	5
<b>ISC/N0009:</b>	PC2. Accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt		10	5	5
<b>Work effectively with others</b>	PC3. Provide information to others clearly, at a pace and in a manner that helps them to understand		10	0	10
	PC4. Display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible		10	5	5
	PC5. Consult with and assist others to maximize effectiveness and efficiency in carrying out tasks		10	5	5
	PC6. Display appropriate communication etiquette while working		10	0	10
	PC7. Display active listening skills while interacting with others at work		10	0	10

	PC8. Use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism		10	5	5
	PC9. Demonstrate responsible and disciplined behaviors at the workplace		15	5	10
	PC10. Escalate grievances and problems to		5	0	5
	<b>NOS Total Marks</b>	<b>Total</b>	<b>100</b>	<b>30</b>	<b>70</b>

## Do



- Explain each Guideline for Assessment in detail
- Explain the score that each trainee needs to obtain
- Recapitulate each NOS one-by-one and take participants through the allocation of marks for Theory and Skills Practical.
- Explain the Allocation of Marks. Explain that they will be assessed on Theory and Skills Practical.
- Explain that for the first NOS, 149 marks are allotted for Theory and & 301 for Skills Practical.



**Skill India**  
कौशल भारत-कुशल भारत



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