Facilitator Guide

Sector
Electronics

Sub-Sector
LED Lighting

Occupation
LED Light Testing and Quality Assurance

Reference ID: ELE/Q9302, Version 1.0
NSFQ Level: 4

LED Light Repair Technician
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.
Acknowledgements

The need for having a standard curriculum for the Job Role based Qualification Packs under the National Skills Qualification Framework was felt necessary for achieving a uniform skill-based training manual in the form of a Participant Handbook.

I would like to take the opportunity to thank everyone who contributed in developing this Handbook for the QP LED Light Repair Technician.

The Handbook is the result of relentless pursuit to develop an effective tool for improving the Skill Based training in the most effective manner.

I would like to thank the team of KontentEdge for their support to develop the content, the SME and the team at the ESSCI along with the industry partners for the relentless effort in bringing the Handbook in the current format.

CEO
Electronics Sector Skills Council of India
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About this Book

This Participant Handbook is designed to enable training for the "LED Light Repair Technician Qualification Pack (QP). Each National Occupation (NOS) is covered across Unit/s.

Key Learning Objectives for the "LED Light Repair Technician" NOS mark the beginning of the Unit/s for that NOS. The symbols used in this book are described below.

Symbols Used

- Notes
- Objectives
- Facilitation Notes
- Activity
- Learning Outcomes
- Resources
- Summary
- Role Play
- Example

Ask

Practical

Demonstrate

Team Activity

Explain

Say

Resources

Activity

Summary

Role Play

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1. Basics of Electronics and LED

Unit 1.1 – Basics of Electronic Components and Electricity
Unit 1.2 – Basics of Electricity
Unit 1.3 – Manual Soldering
Unit 1.4 – LED Basics
Unit 1.5 – Basic Parameters of LED
Unit 1.6 – LED Power Sources
Unit 1.7 – Thermal Management of LEDs
Unit 1.8 – LED Configuration
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Key Learning Outcomes

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

• Identify basic electronic components and its functions

• List the uses of current, voltage, power and energy in LED Lighting products

• Demonstrate the process of soldering

• Explain about LED working principle

• List the parameter which affect the overall life of LED

• Identify the LED power sources

• Describe series and parallel connection of LED

• Explain the passive thermal design and heat transfer procedure in an LED

• Describe constant current of LED Driver
UNIT 1.1: Basics of Electronic Components and Electricity

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

• Identify basic electronic components
• Explain the functions of electronic components

Resources to be Used

• Available objects such as a duster, pen, notebook and so on
• Electronic components such as a diode, capacitors, resistors, transistors and so on

Ask
• Ask the participants if they can tell a few examples of electronic devices.

Explain
• Explain to the participants about electronic components.
• Explain the different types of electronic components.

Notes for Facilitator
• Start the session by telling the participants that electronics is a branch of science which deals with electrical circuits involving active and passive electronic components.
• Tell them that electronic components are the fundamental building blocks of the electronic or electrical circuit.
• Tell them that active components depend on a source of energy to perform their functions and passive components don’t require an external source of energy to perform their functions.
• Tell them about the basic active and passive components with the help of the following figure and show some of the components to them.

Fig 1.1.1: Active and passive components

Active Components
• Diodes
• Transistors
• Integrated Circuit (IC)
• Light Emitting Diode (LED)
• Power Sources
• Solenoid

Passive Components
• Transformer
• Resistor
• Capacitor
• Inductor
• Thermistor
• Explain to them about active components using the following points:
  o Active components are those components which generate energy in the form of voltage or current are called as active components.
  o In very simple words, it can be said that active components are energy donors.

• Next, explain to the participants about passive components using the following points:
  o Passive components are those components which do not require any power source to perform their specific functions.
  o These components are not capable of controlling current.

• Ask the participants if they have heard about resistor colour coding.
• Ask the participants if they know how capacitor is constructed.

• Explain to the participants about colour coding of a resistor.
• Explain the construction of capacitors.
  o Inductors
  o Diodes
  o LED
  o Transistor
  o ICs

• Tell them that a resistor resists the flow of current in a circuit.
• Explain fixed and variable resistors and draw the symbols of them on the whiteboard:

• Explain colour coding of a resistor and how to calculate them.
• Explain that a capacitor is a passive electronic component that stores electrical energy as a static electric field.
• Tell them that a capacitor is made up of two parallel metal plates separated by an insulator known as dielectric.
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Explain polarized and non-polarized capacitors and draw the symbols of them on the whiteboard:

![Polarized and Non-Polarized Capacitors](image1.png)

Inform them that in addition to being a storing device, capacitors are also used as:
- Filtering devices
- Tuning devices
- Smoothing devices
- Signal decoupling and coupling devices.

Explain to them how capacitors are constructed.

Explain to them an inductor is a passive electrical component made up of a coil of wire around a central core.

Explain that when current is passed through an inductor, it stores energy in the form of a magnetic field.

Inform them that inductors are denoted by series of looped coils, as shown in the following figure:

![Looped Coils](image2.png)

Tell them that the inductance of an inductor depends on:
- Radius of coil
- Number of turns of coil
- Material of the core

Inform them that inductors are used in filters, sensors, transformers, motors, and so on.

Show them different types of inductors:
- Air Core Inductor
- Variable Inductor
- Ferromagnetic Core Inductor

Tell them about diodes, LED, transistors, and ICs.
Inform them that the IC is represented by a rectangle, with pins connected to the sides. Each pin must be labelled with a number and its function, as shown in the following figure:

---

**Components**

- **Resistor**
  - In a low-noise amplifier or a pre-amplifier
  - In heavy-duty industrial high-current

- **Capacitor**
  - For energy storage
  - In digital memory
  - In pulsed power and weapons
  - In power conditioning

- **Inductors**
  - For energy storage
  - In analog circuits and signal processing

- **IC**
  - In an oscillator
  - In an amplifier
  - In a memory
  - In a counter, a microprocessor or computer memory

- **Transistors**
  - As an amplifier
  - As a switch

- **LED**
  - In aviation lighting
  - In automobile headlamps
  - In general lighting
  - In traffic signals
  - In camera flashes
  - In lighted wallpaper

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<table>
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UNIT 1.2: Basic of Electricity

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

• Identify the use of current, voltage, power and energy in LED Lighting products

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants to tell what comes to their mind when they think of electricity.
• Ask the participants if they can tell the difference between electrical and electronic devices.

Notes for Facilitator
• Start the session by telling the participants why it is important for them to know about electricity, after the participants share what they think of electricity.
• Tell them that the difference between electronic and electrical devices lies in how the devices manipulate electricity to do their work.
• Explain that electrical devices take the energy of the electric current and transform it in simple ways into some other form of energy; most likely light, heat, or sound.
• Give examples that:
  - The heating elements in a toaster turn electrical energy into heat that allows toasting of bread.
  - The motor in a vacuum cleaner turns electrical energy into sound that drives a pump, which the vacuum sucks the dust out of the carpet.
• Tell that the electronic devices, instead of just converting electrical energy into heat, light, or sound, are designed to manipulate the electrical current into doing interesting and useful things.
• Give examples that:
  - Audio electronic devices add sound information to electric current, which then allows someone to listen to music or talk on a cell phone.
  - Video devices add images to electric current so that one can watch movies.
• Tell them that there is no clear-cut demarcation between electric and electronic devices. Electrical devices often include some electronic components in them and vice versa.
• Give examples that:
  - A toaster may contain an electronic thermostat that attempts to keep the heat at

A1EA

A

A

A

A

A

A

A
just the right temperature to make a perfect toast.

The remote control of a TV set is a complicated electronic device that contains simple electrical devices such as batteries.

- Explain the various terms associated with electricity, such as current, voltage, power, energy.
- Tell them that electricity is a natural force that comes into existence whenever there is a flow of electric charge between any two components.
- Explain that:
  - Voltage is the difference between the charges at two points. It is measured in Volts and is denoted by the symbol, 'V'.
  - Current is the rate of flow of charge. It is measured in Ampere and is denoted by the symbol, 'A'.
- Explain how to calculate the rate of flow of current or the rate at which electric energy is transferred.
- Tell them that the flow of current can be seen in simple mechanisms used in our day-to-day life such as switching on a fan or a light bulb.
- Explain Ohm's law with the help of the diagram.
- Draw the following diagram to explain how to calculate the current if voltage (V) and resistance (R) are given:

\[ V = IR \]
\[ I = \frac{V}{R} \]

The current, I, flowing in the circuit will be \( \frac{24}{3} = 8 \) A.

Then tell them about the linear relation of current and voltage with the help of the following graph, where X axis represents current and Y axis represents voltage.

![Diagrams](https://via.placeholder.com/150)

\[ V = 24 \text{ Volts} \]
\[ R = 3 \text{ Ohms} \]
Explain to them that power is the rate at which electrical energy is consumed in a circuit.

Explain that power depends on voltage and current and is measured in watts.

Tell them that electric power can also be defined as the work done by an electric current in a unit time.

Explain that the power consumed within a structure is measured with the help of electricity meters provided by the power company such as the one shown in the following figure:

Fig 1.

Electricity meter

Explain that the consumers are charged for electricity by the amount they use.

Explain that the unit of measurement of power consumed is watts-hour, that is the consumer pays for:

\[ \text{Watts-hour} = \text{Total watts consumed} \times \text{time in hours} \]

Ask the participants if they have heard of the terms, AC and DC.

Ask them if they know what these terms stand for.

Explain to the participants about electric circuit, AC and DC.

Notes for Facilitator

Tell the participants that a circuit is a closed loop through which electricity can flow. A circuit is a path which starts and stops at the same place.

Explain that an electrical circuit is an interconnection of the following:
- Power source, such as a battery which provides energy for the current to flow through the circuit.
- Load, which is any device that draws power from the circuit such as a light bulb, a TV, a computer and so on.
- Electronic components such as resistors, capacitors and so on.
- Wires that connect various components.
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• Explain that a circuit is of two types:
  - Closed circuit: Allows uninterrupted flow of electricity from the source to the load and then back to the starting point.
  - Open circuit: Does not conduct electricity as the circuit is not complete and the flow of current gets broken.

• Explain the concept of closed and open circuits with the help of the following diagram:

• Inform them that there is another type of circuit called short circuit. It refers to a circuit which does not have a load. However, the current in a short circuit can flow at very high levels and can damage electronic components or even cause a fire.

• Explain that in a series circuit, the load, which is depicted by lamps, is connected to one after another, as shown in the following image:

• Further, tell them that in a parallel circuit, both the lamps are connected to the source, parallel to each other, as shown in the following image:

• Explain that there are two types of currents:
  - AC or alternating current
  - DC or direct current

Explain AC and DC currents with the help of following diagrams:

**Fig 1.**

- AC Current
- DC Current

Further, explain the difference between the features of AC and DC currents with the help of the following table:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>AC</th>
<th>DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direction</td>
<td>Reverses its direction while flowing in a circuit.</td>
<td>Flows in one direction in the circuit.</td>
</tr>
<tr>
<td>Current</td>
<td>Magnitude varying with time</td>
<td>Constant magnitude.</td>
</tr>
<tr>
<td>Obtained from</td>
<td>A.C Generator and mains.</td>
<td>Cell or Battery.</td>
</tr>
<tr>
<td>Passive Parameters</td>
<td>Impedance</td>
<td>Power Factor</td>
</tr>
<tr>
<td></td>
<td>Resistance</td>
<td>Always 1</td>
</tr>
<tr>
<td>Types</td>
<td>Sinusoidal, Trapezoidal, Triangular, Square</td>
<td>Pure and pulsating</td>
</tr>
</tbody>
</table>

**Fig 2.**

- Difference between AC and DC

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<table>
<thead>
<tr>
<th>A1</th>
<th>A2</th>
<th>MA</th>
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UNIT 1.3: Manual Soldering

Unit Objectives
At the end of this unit, students will be able to:
• Explain the process of soldering
• Identify the types of solder and flux
• Describe the working of solder iron
• List the selection criteria of a suitable iron

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants if they know the importance of soldering.
• Ask them if they know about types of solder.
• Ask them if they know about the use of sponge in the soldering process.

Explain
• Explain soldering.
• Explain the use of solder.
• Explain the use of a correct iron tip.
• Explain:
  1. Winding
  2. Base
  3. Stand
  4. Sponge.

Notes for Facilitators
• Start the session by telling the participants that soldering is done to join two or more items (generally metal) by melting a filler metal into the joint.
• Explain that the filler metal is called solder and it has a melting point lower than the adjoining items.
• Tell them about two types of solder:
  1. Tin-Lead solder
  2. Lead-free solder, for example tin-zinc, cadmium-silver, and zinc-aluminum.
• Explain the specifica

on of n

-lead solder with the help of following chart:

<table>
<thead>
<tr>
<th>% of Tin - Lead</th>
<th>Melting Point</th>
</tr>
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<tbody>
<tr>
<td>63 - 37</td>
<td>183 °C (361 °F)</td>
</tr>
<tr>
<td>60 - 40</td>
<td>183 – 190 °C (361 – 374 °F)</td>
</tr>
<tr>
<td>50 - 50</td>
<td>183 – 215 °C (361 – 419 °F)</td>
</tr>
</tbody>
</table>

Fig 1.3.1: Specifica

on of n lead solder

• Explain the applica

ons of different types of lead free solder with the help of following chart:

<table>
<thead>
<tr>
<th>Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin - Zinc</td>
<td>Joining aluminium</td>
</tr>
<tr>
<td>Cadmium - Silver</td>
<td>For providing strength at high temperatures</td>
</tr>
<tr>
<td>Zinc - Aluminium</td>
<td>Aluminium and corrosion resistance</td>
</tr>
<tr>
<td>Tin - Silver</td>
<td>Electronics manufacturing</td>
</tr>
<tr>
<td>Tin - Bismuth</td>
<td>Electronics manufacturing</td>
</tr>
</tbody>
</table>

Fig 1.3.2: Application of type of lead free solder

• Tell them that lead-free solders are becoming popular because of environmental reasons.

• Explain different parts of a soldering iron:

Fig 1.3.3: Parts of soldering iron

• Tell them about a few types of iron tips used in soldering, such as:

Fig 1.3.4: Types of iron tips

• Briefly explain about the different types of wands and bases.

Chisel Tip
Cone Tip
Semi-chisel Tip
Explain the use of stand and sponge in soldering.

Explain the importance of selecting the correct process for soldering with the help of the following diagram:

Fig 1.3.5: Importance of selecting correct process for soldering

Ask:
- Ask the participants if they have heard about flux.
- Ask them whether they have ever seen the process of soldering.

Explain:
- Explain the concept of flux.
- Explain the process of soldering.

Notes for Facilitator:
- Explain the function of flux with the help of the following figure:
  
  Fig 1.3.6: Functions of flux

- Tell them there are three different types of flux:
  - Clean (Rosin Mildly Activated or RMA)
  - No-clean (OA) (Aqueous)
  - Efficient (EAG)

  Efficient transfer of heat
  Good working of solder
  Lower operating costs
  Lower oxidation rates
  Longer life

  Functions of flux:
  - Clean the surface for the process of soldering
  - Remove surface metal oxides
  - Protects the surface from impurities such as dirt, oil and oxidation
  - Enhance heat transfer
Explain that the selection of flux depends on:

- Flux performance
- Flux characteristics that include:
  - Materials of composition (Rosin, Resin, Organic and Inorganic)
  - Flux type
  - Flux form (Solid, Paste and Liquid).

Explain the process of soldering.

Briefly explain the do's and don'ts of the soldering process with the help of the following table:

<table>
<thead>
<tr>
<th>Do's</th>
<th>Don'ts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return the soldering iron to the stand when idle.</td>
<td>Leave the soldering iron unaended.</td>
</tr>
<tr>
<td>Keep the pins clean and wipe them off to keep them shiny and minimize buildup.</td>
<td>A dirty rusty surface will not transfer the heat.</td>
</tr>
<tr>
<td>Use a damp sponge with de-ionized water for cleaning the iron.</td>
<td>Use sandpaper, files or normal water for cleaning the iron.</td>
</tr>
<tr>
<td>Use excessive active flux.</td>
<td>Use excessive active flux.</td>
</tr>
</tbody>
</table>

![Fig 1. 3.7: Dos and don'ts of soldering process](image-url)
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UNIT 1.4: LED Basics

Unit Objectives

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

• Explain the evolution of High Power LED
• Demonstrate LED working principle
• List the parameters which affect the overall life of LED
• Identify various types of LED
• List the advantages of LED light products

Resources to be Used

• Available objects such as a duster, pen, notebook and so on
• Different colours of LEDs

Ask

• Ask the participants if they know how LED works.
• Ask them if they can tell a few advantages of LED technology.

Do

• Show the participants LEDs of different colours.
• Explain the history of LED.
• Explain the working principle of an LED.
• Explain the advantages of LED technology.
• Explain different types of LED and the factors affecting the life of an LED.

Explain

• Fig 1.4.1: LEDs of different colours
Notes for Facilitation

- Start the session by showing LEDs to the participants.
- Explain the history of LED with the help of the timeline:
  - 1907: Inorganic materials can light up on application of electric current
  - 1935: Emission of light in zinc sulfide
  - 1993: First brilliant blue LED
  - 2010: LEDs with 250 lumens per watt
  - 2006: First LEDs with 100 lumens per watt

- Explain different parts of an LED:
  - Fig 1.4.2: Different parts of LED

- Briefly explain working of an LED.
- Tell them about the advantages of using LED technology.
- Tell them about different types of LEDs such as:
  - Indicator Type
  - Illuminator Type
  - Chip on board (COB)
Explain that in addition to these three, there are other types of LEDs such as:

- **LED Strips**:
  - LED strips contain high-powered LEDs which are placed on a thin PCB on a flexible strip. The back of the strip is covered with an adhesive. When power is supplied to the LED strip, the strip LEDs light up over the strip. These strips are simple to install and very economical.

Some types of LED strip lights include are as follows:

  - RGB LED strip - Digital
  - Flashing lights - Rhythm following
  - LED strip - Flexible
  - SMD LED strip - Waterproof
  - Self-adhesive LED strip - Decorative blue-coloured
  - Self-adhesive LED strip - Decorative red-coloured
  - Self-adhesive LED strip - Decorative white-coloured
  - Hit lights ribbon LED strip - Red flexible

- **Miniature LED**:
  - These are usually single LEDs utilized as indicators. They are available in sizes ranging from 2mm to 8mm and come in hole and surface mount packaging. They often do not utilize any separate heat sink. The usual current ranges from 1mA to over 20mA. The size of the LEDs helps set the upper limit on the power consumption by itself because of the heat generated by high current density and the requirement of a heat sink. The shape of the packages can be:
    - Round with a dome shaped or flat top
    - Rectangular having flat top
    - Triangular or square having a flat top.

- **High Power LED**:
  - High-power LEDs (HP-LEDs) or high-output LEDs (HO-LEDs) have the capability to be driven at high currents ranging from mA to an ampere. They have tremendous output and come in various shapes and sizes. These LEDs require heat sinks due to heat dissipation. They can function for more than 60,000 hours.
They are utilized in various ways, as shown in the following figure:

**Fig 1.**

- **4.3:** Utilization of LED in various devices

**Application Specific LED:**

Application specific LEDs are made for a specific application only, such as:

**Fig 1.**

- **4.4:** Application specific LEDs

An bi-colour LED includes a single frame with two pins and two diodes mounted on it. One of the pins is anode and the other is cathode. This LED can emit two colors, depending on whether it is in a forward bias or reverse bias condition.

A tri-colour LED also has a single frame with two diodes mounted on it, but there are three pins.

- **Street lights**
- **Home appliances**
- **Table lamps**
- **Different types of lighting**
- **Digital billboards**
- **Digital display boards**

- **Bi-colour LEDs**
- **Tri-colour LEDs**
Facilitator Guide

• Explain the factors that affect the life of an LED such as:
  o Current
  o Temperature
  o Radiation and light
  o Dampness
  o Mechanical influence
  o Chemical influence
UNIT 1.5: Basic Parameters of LED

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

- List the basic parameters of LEDs
- Describe the importance of CCT and CRI in LED products

Resources to be Used:

- Available objects such as a duster, pen, notebook and so on
- Ask participants if they have heard about Colour Rendering Index (CRI) and Correlated Colour Temperature (CCT).

Explain:

- Explain the importance of Colour Rendering Index and Correlated Colour Temperature.

Notes for Facilitation:

- Start the session by telling the participants that two important parameters of lights are:

  - Colour Rendering Index (CRI)
  - Correlated Colour Temperature (CCT)
Facilitator Guide

• Show them CRI for different types of lamps:

Fig 1. 5.2: CRI for different lamps

• Tell them that CCT is used to define the color appearance of a white LED and refers to the tone or shade of white light.

• Tell them that CCT of a:
  - Warm light is approximately 2700K
  - Neutral white is approximately 4000K
  - Cool white is at 5000K or more.

• Explain the range of CCT with the help of the following diagram:

Fig 1. 5.3: Ranges of CCT

• Also, tell them about the different colour temperature LED lighting used in different places such as:
  - Public applications
  - Hotel lighting
  - Office lighting
  - Warehouse lighting
  - Shopping mall lighting
UNIT 1.6: LED Power Sources

Objectives
At the end of this unit, students will be able to:
• Identify the LED power sources
• List components used in power supply
• Describe series and parallel connection of LED

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants if they can tell about the unit of light output.

Explain
• Explain different types of LED power sources.
• Explain the types of LED connection in a circuit.

Notes for Facilitator
• Start the session by explaining to the participants, the difference between powering an LED and other electronics products.
• Tell them the characteristics of LED power sources.
• Draw the following diagram and tell them that in order for a LED to turn on, a voltage must be applied across its leads, from anode to cathode. This voltage is known as forward voltage (V_f).

Fig 1. 6.1: Forward voltage

[Diagram of LED with anode and cathode, showing forward voltage diagram]
Also, tell them that typical LED values are:

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-high-brightness red</td>
<td>1.7</td>
</tr>
<tr>
<td>High-brightness low-current red</td>
<td>1.9</td>
</tr>
<tr>
<td>Orange and yellow</td>
<td>2.0</td>
</tr>
<tr>
<td>Green</td>
<td>2.1</td>
</tr>
<tr>
<td>Bright white and blue</td>
<td>3.4 to 3.6</td>
</tr>
</tbody>
</table>

Fig 1.6.2: Voltage for different type of LED

Briefly explain the working of LED power sources.

Explain that the LEDs can either be connected in series or parallel.

Explain the advantages and disadvantages to connecting LEDs in series and in parallel in a circuit.
UNIT 1.7: Thermal Management of LEDs

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

• Explain the heat transfer procedure in an LED
• Describe the passive thermal design
• Identify the use of heat sink

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Explain
• Explain heat transfer procedure in a LED Luminary.

Notes for Facilitator
• Start the session by telling the participants about the heat transfer mechanism:
  - Conduction
  - Convection
  - Radiation

Text:
- Conduction: Refers to the heat transfer from a solid surface to a moving fluid at a different temperature.
- Convection: Refers to the heat exchange between two or more medium. It's defined as the electromagnetic radiation in the wavelength range.
- Radiation:
Explain the process of transfer of heat from LED to atmosphere with the help of the following figure:

Fig 1.7.2: Process of transfer of heat

Explain the importance of keeping the junction temperature low.

Tell them about passive thermal designs for ensuring efficient thermal management of high power LED application.

Passive thermal designs include:
- Adhesive
- Heat sink
- Heat Pipe

Explain heat radiation with the help of following image:

Fig 1.7.3: Heat radiation
Also, show them the following image of heat sink and explain how the following characteristics of heat sink affect the efficiency of heat transfer:

- Material
- Shape
- Surface Finish
- Method of Mounting

Tell them about heat pipes and vapor chambers.

Tell them about Metal Core PCBs.
Facilitator Guide

UNIT 1.8: LED Configurations

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

• Describe constant current of LED Driver
• Identify the needs of LED Driver parameters

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Notes for Facilitation
• Start the session by introducing two types of LED drivers to the participants, as shown in the following figure:

![Fig 1. 8.1: Type of LED drivers](image)

• Tell them that constant current LED drivers are used for a fixed output current and a range of output voltages. This type of driver varies the voltage across the circuit allowing a constant current across the device.

• Also, tell them that the current beyond the range of the LED is known as thermal runaway and it leads to reduced life-span of the LED and premature burn out.

• Tell them that these are generally used for commercial LED displays, signs and back-lit lighting as consistent brightness as well as constant level of current are maintained.
LED Light Repair Technician

Explain the series and parallel configuration of LEDs with the help of the following figure:

*Fig 1. 8.2: Configuration of LEDs*

- In a parallel circuit, it is easier to connect and disconnect a new element without affecting the other elements in the circuit.
- Also, if a fault occurs in any string, the current is passed through different paths across the circuit.

Explain the advantages and disadvantages of series and parallel configurations of LEDs.

Briefly explain the structure of an LED matrix and its advantages and disadvantages.

Also, show them an LED matrix, such as the one shown in the following image:

*Fig 1. 8.3: LED matrix*
LED Light Repair Technician

2. LED Luminary Assembly

2.1 - LED Luminary Assembly

2.2 - Select LED Drivers

2.3 - Diagnose and Repair LED Light

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Key Learning Outcomes

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

• Demonstrate basic knowledge of product assembly
• Identify the tools required for LED product assembly
• Explain different types of drivers
• Demonstrate driver selection according to the LED
UNIT 2.1: LED luminary Assembly

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

• Demonstrate basic knowledge of product assembly
• Identify the tools required for LED product assembly
• List the materials used in LED product assembly

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Discussion
• Ask the participants if they can tell a few components of LED luminaire assembly.
• Explain the components of an LED assembly.
• Explain the assembly of different LED products.

Notes for Facilitator
• Start the session by telling the participants that a transparent material such as silicone or epoxy is used to encapsulate LEDs. A blue LED in a broadband, white appearing spectrum is converted into a white LED by adding phosphor.
• Explain the process flow of LED luminary assembly with the help of following diagram:

![Process for LED Manufacturing](image)

1. Epigrowth
2. Epi-layer
3. LED Chip Design
4. LED Chip with Microstructure
5. Packaging
6. Testing
7. LED Module
Also, show the different types of LED packaging available:

![LED Packaging Diagram]

Show them different parts of an LED assembly:

![LED Assembly Diagram]
**LED Light Repair Technician**

**Explain different components of a luminaire assembly with the help of the following figure:**

*Fig 2.1.4: Components of luminary assembly*

**Tell them about various thermal interface materials that facilitate heat dissipation:**

- **Thermal grease:** It eliminates air gaps that act as thermal insulator, between two parts, and maximizes heat transfer.
- **Thermal glue:** It allows a bond line between two parts like grease, but unlike the grease it also provides mechanical strength to the joint after curing.
- **Thermal gap filler:** It allows a bond line, thicker than the thermal grease after curing. But, it allows easy disassembly since it has limited adhesiveness.
- **Thermal pad:** Thermal pads are soft and solid and are made of silicone or silicone-like material. It requires higher force to press the heat sink on the heat source to conform to the bonded surfaces.
- **Thermal adhesive:** It is like a thermal pad that has adhesive properties.

**Tell them about different tools required for luminaire assembly:**

<table>
<thead>
<tr>
<th>Tool and equipment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needle-nose pliers</td>
<td>Used to bend, reposition and snip wire. Helps in reaching areas where fingers or any other tool/instrument is less likely to reach.</td>
</tr>
</tbody>
</table>

**LED Light Engine**
- It consists of one or more LED chip mounted on a board in arrays.

**LED Driver**
- It regulates the power to the strings of LEDs.
- It is a self-contained power supply that outputs power matching the LED electrical characteristics.

**Heat Sink**
- It manages the junction temperature of LEDs.

**Diffuser**
- It helps to spread light, hiding individual LED.

**Lens**
- It helps to transmit light in an aligned direction.

**Mechanical Housing**
- It protects the LEDs from outside environment.

**Thermal Tapes/Thermal Pads**
- It is used to attach heat sink. It helps in efficient thermal management.

**Connecting Wire**
- It is used to connect the LED strings together.
### Different tools required for luminary assembly

<table>
<thead>
<tr>
<th>Tool Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire strippers</td>
<td>Used to strip the insulation on electric wires</td>
</tr>
<tr>
<td>Wire cutters</td>
<td>Used for cutting wires</td>
</tr>
<tr>
<td>Screwdriver</td>
<td>Used to turn or remove screws</td>
</tr>
<tr>
<td>Spanner</td>
<td>Used to grip and turn a nut or a bolt</td>
</tr>
</tbody>
</table>

#### Basic steps of luminary assembly

1. Assemble the base components
2. Assemble the heat management components
3. Join the base assembly and heat sink assembly
LED Light Repair Technician

1. Explain the LED bulb assembly steps one by one:
   - Fig 2.1.7: Steps of LED bulb assembly

2. Tell them about LED tube light assembly and show them an assembly if possible:
   - Fig 2.1.8: LED tube light assembly

3. Explain the steps for LED down light assembly.

4. Briefly explain how to assemble LED street lights.
   - Put LED drivers into the housing.
   - Put plates, chipboards and tighten them with screws.
   - Solder wires with the LED chip board.
   - Install the base cap.
   - Test and repair them if required.
   - Install the cover.
Tell them that the burn-in test is done to test electronic components.

Explain the steps for round panel assembly and square panel light assembly.

Tell them that, during burn-in test, the system components are exercised before they are assembled or placed in service. This process will force certain failures of the components under supervised conditions so that load capacity of the product can be estimated.

Also, tell them that burn-in is conducted for electronic components at elevated temperature and voltage.

Explain IP code or IP rating to the participants.

Tell them what the digits and letters in the code actually mean.
UNIT 2.2: Selection of LED Drivers

Unit Objectives
At the end of this unit, students will be able to:
• Explain different types of drivers
• Demonstrate driver selection according to the LED

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants if they can remember the types of LED drivers.

Explain
• Explain the criteria for the selection of LED driver.
• Explain constant current and constant voltage driver.

Notes for Facilitator
• Start the session by telling the participants that LED drivers are the source of power for LEDs.
• Explain the features of LED drivers with the help of the following figure:

Fig 2.2.1: Features of LED drivers

Isolate the lighting systems from high voltage
Minimize the shock hazard
Regulate system power to face line-voltage fluctuations that can damage the LEDs
Tell them the selection of LED drivers is based on the criteria shown in the following figure:

- **Fig. 2.2: Selection of LED drivers**

Explain that the LED drivers can be categorized into the following types:

- Constant current drivers (CC)
- Constant voltage drivers (CV)

| Forward current required by LED | Power consumption of LED | Output voltage range of the driver | Luminaire specification | Physical dimension of driver | Operating environment of the luminaire |

![Diagram of LED driver selection criteria]
UNIT 2.3: Diagnose and Repair LED Light

Unit Objectives
At the end of this unit, students will be able to:
• Explain different types of drivers.

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants if they can remember the major components of an LED light.

Explain
• Explain the reasons for LED failure.
• Explain different LED failure modes.

Notes for Facilitation
• Start the session by telling the participants that the major components of LED lights are as follows:
  o LED source
  o Drivers
  o Thermal management
  o Controller

• Tell them about the reasons of LED failures as shown in the following figure:

Fig 2.3.1: Reason of LED failure

• Also, tell them that LED failure may occur due to efficiency droop. It refers to the decrease in luminous efficiency of LEDs with increase in current. When a LED lamp is switched on, the electrical current running through the LEDs increases. This leads to a

Component Quality Environmental Factors overheating temperature fluctuations structural issues
drop of up to 20% in the luminous efficacy of the LEDs. So, higher the amount of electricity running through LED lamp, higher is the impact on the efficiency droop.

• Explain the different failure modes of LED luminaire assembly shown in the following figure:

Fig 2.3: Failure mode of LED luminary assembly

• Tell them that the operational performance of LEDs decreases gradually with time because of growing defects in the epitaxy layers.

• Also, tell them that a 30% or 50% decrease in performance may be expected, while the expected operational life is 20,000-100,000 hours.

• Briefly explain that the following adverse factors can result in loss in LED efficiency within a period lower than estimated life:
  o Low quality of epitaxy layers
  o Excess junction temperature
  o Penetration of humidity or other contaminants
  o Latent Electro Static Discharge (ESD) damage
  o Instable power supply.

• Tell them that any obstruction in the path of the current causes frequent failures that reduce light emission.

• Tell them that during soldering, thermal overload can cause cracks, detachments or delamination across the joints as a result of different expansion rates of the materials.

• Tell them that failure analysis is done to find the possible root cause and to show a way to avoid it.

Packaging related failure
Metal and semiconductor related failure
Stress-related failure such as thermal runaway
Secondary Opc failure
Thermal Management System failure
Driver failure
Tell them that the failure analysis is done using the following methods:

Fig. 3.3: Failure analysis methods

- Impurities of the light emitting area
- Radiation characteristics
- Problems in thermal coupling
- Measurements of thermal resistance
- Detachment of bond wire
- X-ray microscope
- Delamination on the interface layer
- Scanning acoustic microscopy
- Localisation of failures inside the LED
- Cross-sectioning of encapsulation materials
- Failures at the interfaces
  - Optical or Scanning electron microscopy (SEM) microscopy
- Impurities in corrosion effects
  - Material analysis with Energy Dispersive X-ray (EDX)

Reveal dark spots or dark lines and other defective areas on the chip
- Cathode luminescence by localisation of light emission
- Electron Beam-Induced Current (EBIC) or Optical Beam-Induced Current (OBIC)
- Light-emitted leakage current
- Emission microscopy
- Detailed analysis of epitaxy layer failures
- Transmission Electron Microscopy (TEM) and Fused Ion Beam (FIB)

Explain the connection and working of the LED driver.

Briefly explain the steps for diagnosing LED faults.

Tell them that to diagnose the fault, they should know:
- Operating environment of the LED/Module
- The driving mode used
- For how long the LEDs were operating
- Measurements of wavelength and colour, current/voltage curves, radiation characteristics, and intensity of light
- Physical analysis using external electro-beam, laser beam, emission microscopy, cathode luminescence
- Destructive analysis by cross-sectioning or opening the package
- Non-destructive analysis using x-ray, scanning acoustic microscopy, and light optical microscopy.
Tell them that if the voltage increases in the forward direction, it points to a disturbance in the current path. Further, if there is an increase in current leakage in reverse bias, it points to a severe disorder in the epitaxy layers, caused, for example, by ESD.

Explain that they need to compare the structures of the current/voltage curve between failed and working LEDs to be able to differentiate between the various causes of errors.
3. Safety Standards

Unit 3.1 – Electro Static Discharge (ESD)

Unit 3.2 – Safety Standards

Unit 3.3 – Importance of 5S on Productivity & Management
Key Learning Outcomes
At the end of this module, you will be able to:
• Interpret basic knowledge of ESD
• How to prevent ESD Damage
• Balancing an ESD Control Plan
LED Light Repair Technician

UNIT 3.1: Electrostatic Discharge (ESD)

Unit Objectives

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

• Interpret basic knowledge of ESD
• Explain how to prevent ESD Damage
• Describe balancing of an ESD Control Plan

Resources to be Used

• Available objects such as a duster, pen, notebook and so on

Ask

• Ask the participants if they can tell what ESD is.

Explain

• Explain to the participants about ESD.
• Explain ESD related damages.

Notes for Facilitation

• Start the session by telling the participants that, while manufacturing electronic products, ESD is one of the issues that arise as it can cause damage to the electronic devices and components.
• Tell them that ESD is the sudden build-up of static electricity when two differently charged objects are brought together.
• Tell them that ESD may occur when an electrically charged object is kept near a conductive object which is isolated from the ground.
• Explain the reasons of ESD with the help of the following figure:

Fig 3.1.1: Reason of ESD

• Explain that ESD protection is essential for sensitive components, during an and after assembly. Absence of electrostatic wrist strap, use of synthetic materials, movement of air, human negligence, improper grounding, unshielded cables and components are some of the reasons for ESD occurrence.
• Also, tell them about the safety gears for ESD protection:
  - Wire Strap
  - Gloves
  - Safety Clothes

• Tell them about ESD sensitivity level of a human being.

• Tell them a few examples of ESD in daily life, such as:
  - Rubbing a balloon against a sweater
  - Walking on a rug
  - Removing plastic packaging
  - Rubbing comb against dry hair
  - Rapid movement of air near electronic devices

• Tell them that ESD can cause severe damage to components such as microchips. Grounding is imperative for ESD prevention. An ESD Simulator having special output circuits called human body model (HBM), is generally utilized to test the vulnerability of electronic devices to ESD from human contact.

• Tell them that ESD damage can occur due to any of the three causes:
  - Discharge to the device
  - Discharge from the device
  - Charge transfers from electrostatic fields.

• Explain the types of ESD failures:
  - Catastrophic damage causes the device to stop functioning immediately. The device is permanently damaged. This type of failure is usually found during the testing process.
  - Parametric failure alters the parameters of a device, such as resistance of resistors, which causes a shift in the required tolerance.
  - Latent defect causes unnoticeable damage to the device, and the device seems to function properly. But over time, it may affect the expected life of the device or its functioning. This failure passes testing process, but the device may fail at customer site.
Tell them that the following figure represents some of the ESD prevention guidelines that must be followed to reduce the risk of ESD damage to the components:

Fig. 3.1.2: ESD prevention guidelines

Explain the measures that should be taken to minimize the risk of ESD.

Explain the steps of ESD process control in assembly environment.

Explain ESD control plan along with the following steps:

1. Define the devices to be protected.
2. Become familiar with standards for ESD control.
3. Select a bonding system for grounding.
4. Determine personnel grounding method for operators.
5. Identify and set up ESD protected areas (EPAs).
6. Choose ESD control items to be used in the EPAs.
7. Develop packaging plan for handling and storing ESD materials.
8. Use proper labels for ESD susceptible items, systems, or packaging.
9. Ensure that a compliance verification plan is in place.
10. Develop training plan.
11. Ensure that the ESD control plan is an integral part of internal quality system requirements.

Hold the integrated circuit or IC by its body and not by the pins.

Hold the printed circuit board or PCB by its edges.

Never place components on a metal surface.

Leave all the electronic components in their ESD-safe packaging until they are not in use.
UNIT 3.2: Safety Standards

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

• Identify ESD causes and safety gear
• Identify company rules on PPE
• Explain precautions for ESD product testing

Resources to be Used
• Available objects such as a duster, pen, notebook and so on

Ask
• Ask the participants if they remember the causes of ESD.
• Ask them if they remember the safety gears used for ESD protection.

Explain
• Explain to the participants about ESD.
• Explain ESD-related damages.

Notes for Facilitator
• Start the session by asking the participants about ESD. When they come with answers, make a recap of the causes and safety gears for protection.
• Tell them about precautions to be taken to avoid ESD.
• Also, tell them that they should use ESD-protective floor mats, ESD-protective packaging and handling material to avoid ESD damage.
• Tell them to keep the synthetic materials more than 4 inches away from electronic components.
• Tell them to follow the safety precautions as shown in the following figure:

Fig 3.2.1: Safety precautions

Stay away from water to avoid an electric shock while working with electricity.
Never touch any electrical equipment with wet hands.
Avoid using equipment with damaged insulation or broken parts.
Always check for any warning signs while working with electrical equipment.
Follow the safety rules provided by the local electrical code.
Use insulated rubber gloves and safety goggles while working on electrical circuit.
Avoid working on any energized equipment.
Connect all the metallic components that are not carrying current to earth.
UNIT 3.3: Importance of 5S on Productivity & Management

Unit Objectives

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

• Recognize 5S work standards

Resources to be Used

• Available objects such as a duster, pen, notebook and so on

Facilitator Guide

Ask

• Ask the participants if they have heard about 5S.
• Ask them if they remember the safety gears used for ESD protection.

Explain

• Explain 5S.
• Explain ESD related damages.

Notes for Facilitator

• Start the session by telling the participants about work standard.
• Tell them that it should be ensured that work standard should be implemented in every sphere of the organization.
• Also, tell that, 5S and Kaizen are two standards which ensure or enable improvement of the work process.
• Explain to them that following 5S helps to:
  o organizing a work place efficiently and effectively
  o maintaining the work area
  o identifying the items used
  o storing the items in proper place and so on.
• Briefly explain the elements of 5S:
  o Sorting (Seiri)
  o Systematic Arrangement (Seiton)
  o Shining (Seiso)
  o Standardizing (Seiketsu)
  o Sustaining (Shitsuke)

• Tell the participants that the Japanese word 'Kaizen' is made up of two words – 'kai' which means change and 'zen' which means good.
• It is a way of thinking and not a project to complete. It focuses on involving everyone in making continuous small improvements in their job role.
• Tell them about that kaizen cycle – Plan 'Do 'Check 'Act (PDCA).

• Tell them that kaizen can also be used in their personal life.

• Tell that kaizen also involves training of employees to achieve the specific standards and maintain their improvement to manage those standards.

• Explain the advantages of Kaizen with the help of the following figure:

Fig. 3.3: Advantages of Kaizen

• Also, tell them the following key elements of Kaizen:

Fig. 3.2: Key elements of Kaizen

• Tell them how they can contribute to improving workplace:

1. Standardize activities and operations
2. Measure standardized operations
3. Check the measurements against requirements
4. Innovate new processes to meet requirements and increase productivity
5. Standardize new and improved operations
6. Continue the cycle
7. Quality
8. Effort
9. Employee involvement
10. Willingness to change
11. Communication
Facilitator Guide

Key Learning Outcomes

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

• Interact with supervisor
• Interact with colleagues
• Know safety procedures and safety measures of an organization
• Know reporting structure of an organization
• Understand organizational safety policies
• Understand organizational work policies
UNIT 4.1: Interaction with Superior, Company Policies and Safety Procedures

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

- Interact with supervisor
- Interact with colleagues
- Know safety procedures and safety measures of an organization
- Know reporting structure of an organization
- Understand organizational safety policies
- Understand organizational work policies

Resources to be Used

- Available objects such as a duster, pen, notebook and so on.
- Various personal protective equipment such as gloves, goggles, helmet and jacket

Activity

- Ask the participants if they can tell about the importance of interacting with superiors.
- Ask them if they can tell about teamwork and work policies of organization.

Role Play

- Ask the two participants to enact a role play.
- One of them is LED repair technician and the second one is his superior.
- The situation is that the technician has recently joined and has approached the superior to understand his work requirement.
- Ask them to enact the interaction between the two of them.

Time

- Set five minutes as the time limit of the role play.
- Ensure that the role play finishes within the time.

Activity

- Divide the participants in four groups.
- Group A Topic 'Internal communication with colleagues'
  Situation 'You have to hand over a repair work to your colleague in between.'
What information will you share with him?

- **Group B**
  - **Topic**: Archiving information
  - **Situation**: Your superior has asked you to put all old case files in order. How will you do it?

- **Group C**
  - **Topic**: Email and Internet
  - **Situation**: A new joinee does not know how to send email. What will you do?

- **Group D**
  - **Topic**: Encouraging internal communication
  - **Situation**: What will you do to encourage colleagues to share information among them?

Time

- Set five minutes as the activity limit.
- Ensure that the activity finishes within the set time.

Explain

- Explain the factors of work ethics one by one and relate them to the work environment of a LED repair technician.
- Explain the importance of maintaining right interaction with superior.
- Explain the reporting structure.
- Explain the importance of maintaining right interaction with colleagues.
- Explain electrical safety measures.
- Explain fire safety measures and mechanical safety.
- Explain to them some jobsite safety measures that should be followed.
- Explain that using PPE is important as it provides:
  - Skin protection
  - Eye protection
  - Hearing protection
  - Foot protection
- Explain the meaning of the term 'incident reporting procedure'.
- Explain the types and the procedure of incident reporting.
- Further, explain that they must promptly inform their supervisor in case of any safety incident and follow the proper reporting procedure.
- Introduce the topic of communication skill.
- Explain the importance of good communication skill.
Do

• Write the following points on the whiteboard and explain the core skills of teamwork and multitasking:

Fig 4.1.1: Core skills of teamwork

• Draw the following diagram on the whiteboard and explain the various safety precautions that should be taken while working.

Fig 4.1.2: Safety measures

Notes for Facilitation

• Tell the participants the importance of interacting with the supervisor and colleagues.

• Tell them they should maintain a good relationship with supervisors and colleagues to maintain a healthy work environment.

• At the end of the role play, have a discussion about proper interaction with the supervisor.

• Explain in detail the two components of interaction:
  o Understanding work requirements
  o Understanding standard operating procedures

• At the end of the activity, have a discussion on proper interaction with colleagues.

• Explain in detail the four components of interaction:
  o Internal communications
  o Archiving information

Be Liberal with Praise
Pick Your Moments
Take an Interest
Outside of Work
Be Willing to Socialize on Your Breaks
Treat Your Co-workers as You Would Want Them to Treat You
Don't Gossip
Face Problems Head On
Don't Push Too Hard to Make Friends
Offer Help When It's Needed
Facilitator Guide

- Explain the importance of working as a team.
- Explain general work policies and processes of an organization.
- Write the terms on the whiteboard and tell them that they need to understand the factors of work requirements that include:

  - Fig. 4.1.3: Work requirements
  - Tell them that they must understand the work requirements and standard operating procedures of the organization to achieve quality and productivity. They need to understand the following:
    - Fig. 4.1.4: Standard operating procedure of organization
    - Individual work requirement and areas of operation
    - Standard operating procedures
    - Requirement of tools and equipment
    - New technology developments
    - Plan and control work for efficiency
    - Formats
      - Corrective / Preventive action
      - Product / Service conformities
      - Reaction control
      - Machine operating procedure
      - Process control
      - Process flow
Tell them the importance of reporting structure and briefly explain the basic reporting structure of an organization. Tell that reporting structure depends on the business type and size used.

Tell that the workplace safety is important to ensure reduction of accidents and improvement of work performance.

Say that they should know about the work area, equipment involved and usage of tools, forms of personal protection, safety hazards information.

Draw the following diagram on the whiteboard and explain the various types of hazards

![Diagram of Hazards]

1. Chemical Hazards
2. Biological Hazards
3. Physical Hazards
4. Ergonomic Hazards
5. Electrical Hazards
6. Safety Hazards

Explain sources of potential hazards and briefly explain each one of them.

Explain the organization safety policies.

Explain the responsibilities of the safety committee.

Explain the responsibilities of the managers with regard to the employee health and safety.

Explain different types of hazards and their sources.

Write on the whiteboard and tell the participants that the policies followed in an organization are:
- Environmental Management System (EMS)
- Environment, Health and Safety (EHS)
- Health and Safety (H & S)

Briefly explain about the policies.

Tell them that the safety committee, the employers and the employees have their own responsibilities towards organizational safety policies.

Tell them that they should abide by the general safety guidelines to ensure workplace safety.

Tell them that misuse and improper maintenance of hand and power tools can cause potential hazards.

Also explain that power tools are extremely hazardous when used or maintained improperly. Workers using hand and power tools may be exposed to several hazards, including:
- Objects that are abrasive, or splash
- Harmful dusts, fumes, mists, vapours, and gases
Facilitator Guide

- Frayed or damaged electrical cords
- Hazardous connections and improper grounding.

- Also tell them that eye protection is usually always required. All hand and power tools and similar equipment, whether furnished by the employer or the employee, should be maintained in a safe condition. All power tools must be fitted with factory guards and safety switches, and hand-held power tools must be equipped with a constant pressure switch or on-off switch.

- Tell them about various safety gears and the responsibilities of employees and employers towards it.

- Also tell them that for hand they should use:
  - Durable gloves made of mesh, leather or high-performance materials to protect from cuts, burns and heat.
  - Chemical-resistant rubber gloves to protect from burns and irritation.
  - Electrical insulating gloves for exposure to live voltages.

- Explain that to be effective, their communication should include:
  - What they saw
  - What they heard
  - What they felt
  - What they want
  - What will be the result?
Unit 5.1 – Personal Strengths & Value Systems

Unit 5.2 – Digital Literacy: A Recap

Unit 5.3 – Money Makers

Unit 5.4 – Preparing for Employment & Self-Employment

Unit 5.5 – Understanding Entrepreneurship

Unit 5.6 – Preparing to be an Entrepreneur
4. I follow the steps

B Explain the data

P Notice the participants about ways to fit into the class. The participants will work in groups of 3 or 4 people. The participants may be formed on a basis of various tasks within the class.
A

6. A5b0, A602, A70, A801
7. A5b0, A602, A70, A801

2. Assume nothing and check someone.
3. The session, or the class, may begin.
4. It is likely that the session will begin.
5. Assume nothing and check someone.
6. The session, or the class, may begin.
7. It is likely that the session will begin.

8. Assume nothing and check someone.
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15. The session, or the class, may begin.
16. It is likely that the session will begin.
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 natural—but be conscious of the fact that your role may differ from the approach from which you might normally use.

3. You (and others) may benefit from the change in approach and behavior. 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 tone of the session or activity. Try not to keep referring to the brief as this will affect the spontaneity of the moment. Allow the role play to develop as you think it might in real life and change your responses in line with the behaviors 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 you are taking and try to make your impressions as realistic as possible.
Key Learning Outcomes

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

1. Explain the meaning of personal strengths & value systems
2. List common health issues
3. Discuss possible 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 why to set up a safe working environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Discuss movement with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of effective workers with achievement motivation
13. List different factors that motivate you
14. Discuss the role of attitude in self-analysis
15. Discuss how to maintain a positive attitude
UNIT 5.1.1: Health, Habits, Hygiene: What is Health?

Objectives
At the end of this unit, the participants will be able to:
• Explain the meaning of health
• List common health issues
• Discuss preventive common health issues
• Explain the meaning of hygiene
• Discuss the purpose of Swamp Bath Abhiyan
• 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.
• When did you visit the doctor last? Was it for you or for a family member?

Ask
• Why 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.

Role Play
• Conduct a small skit with volunteers from the class. Consider one of the village representatives appointed as a health representative of the village, what measures will you as a health representative suggest to the common village to prevent common health issues discussed.
• You will need at least 4 volunteers (Nar, Health Representative, Head of the Village, 60's A).
• 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 the exercise.
• At the end of 5 minutes, ask the group to present the skit to the class assuming them as the villagers.

Summary • Through this activity, we got some pointers on how we can 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 Checks from the Participant Handbook.

Ask • How many do you think they 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 to the 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 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 keys they got.
Tell them that they need to follow all the guidelines 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
• 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 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 they have 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?
Tell them about Swachh Bharat Abhiyan as given in the Paricahan Handbook and request them to take pledge to keep our country clean.

Ask:

• What is a habit?

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.
Facilitator Guide

UNIT 5.1.2: 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 equipment
• 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 the workplace.
Second part will cover a few safety signs, symbols, and equipment at the workplace.

<table>
<thead>
<tr>
<th>Potential Safety Hazards</th>
<th>How could it be corrected?</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Part 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety sign</td>
<td>Safety equipment</td>
</tr>
<tr>
<td>Health and safety manual</td>
<td>First aid kit</td>
</tr>
<tr>
<td>Emergency evacuation plan</td>
<td>Fire extinguisher</td>
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</tbody>
</table>

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.

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.
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</tr>
<tr>
<td>Emergency evacuation plan</td>
<td>Fire extinguisher</td>
</tr>
</tbody>
</table>
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 correct 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 group is 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 me.
• Tell the group to wind up the discussion quickly if they go beyond the given time limit.
• What did you learn from the exercise?
• As an employer, is it important to ensure the safety of your employees from possible hazards? Why?

Summary
• 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 points to design a safe workplace and non-negligible employees' safety habits.
LED Light Repair Technician

UNIT 5.1.3: Self-Analysis

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

• Explain the importance of self-analysis
• Discuss movement with the help of Maslow’s Hierarchy of Needs
• Discuss the meaning of achievement movement
• List the characteristics of entrepreneurs with achievement movement
• List the different factors that motivate you
• Discuss the role of attitude in self-analysis
• Discuss how to maintain a positive attitude.

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.
Facilitator Guide

Discuss

•

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

Team Activity

To water building

•

each group which will create a tower using the 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 and characteristics of entrepreneurs as discussed in the Pancipan 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 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 tide was fresh, and the starfish were alive. The tide was fresh, and the starfish were alive. The tide was fresh, and the starfish were alive.
A 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 doesn’t 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 activity.
- 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.
Facilitator Guide

UNIT 5.1.4: Hones & 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

• 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:
  o What went wrong?
  o Who was at fault?
  o Whom did it impact - the customer or the businessman?
  o How would it impact the business immediately? What would be the long-term impact?
  o What could be done?
  o 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.
A

1. Rajni, a sales woman, was walking on the sidewalk when she heard a loud noise. She ran inside the shop and found a man setting up a new stereo system. She asked him what he was doing, and he explained that he was setting up his personal stereo system. Rajni was surprised and asked why he would do such a thing. The man explained that he was getting ready for a party and wanted to have his stereo system ready for the entertainment.

2. Aakash has a small mobile retail sales and repair shop in Allahabad. He has one of the most popular outlets with the highest sales in the city. He has been running the shop for the past five years and is very happy with the business. However, there is a problem that he has been facing recently, which is the increasing number of complaints from the customers. The customers are not happy with the quality of the products and the service provided.

3. What would you do if you were in Rajni's place? Would you go to the customer to apologize and explain the situation? Would you take the customer's name and contact number to call them later? Would you consider the customer's feedback and try to improve the quality of the products and the service provided?

4. Ask the group to select a group leader for their group. The group leader should discuss and brainstorm the possible solutions to the given problem. The group should present their case to the class after 10 minutes. The group is expected to analyze and discuss the case amongst them and find a solution to the given problem.

5. The class is divided into groups of four. Each group is given a problem to solve. The groups are expected to work together to solve the problem and present their solution to the class. The groups should present their solution to the class after 10 minutes. The groups are expected to analyze and discuss the case amongst them and find a solution to the given problem.

6. The group members are expected to analyze and discuss the case amongst them and find a solution to the given problem. The groups should present their solution to the class after 10 minutes. The groups are expected to analyze and discuss the case amongst them and find a solution to the given problem.

7. The group members are expected to analyze and discuss the case amongst them and find a solution to the given problem. The groups should present their solution to the class after 10 minutes. The groups are expected to analyze and discuss the case amongst them and find a solution to the given problem.
Facilitator Guide

- Do not mislead
- Shailender
- Shan
- Scenario
- Scenario
- Facilitator Guide

Scenario
to entrepreneurs
Close the discussion by summarizing the importance of honesty and work ethics for entrepreneurs.
### Here is a plain text representation of the document:

**Unit Objectives**

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

- Discuss some inspiring stories about people which I would like to share with you.
- Let's have a look at these stories.
- What was so special about these people?
- What do these stories tell us?
Facilitator Guide

Activity

Let's learn more about such creative entrepreneurs with the help of an Activity. Does he/she possess?

If they can, why can't you?

What creativity and entrepreneurship means to him/her?

Ask the Team Activity.

Recall the stories on melting the ice to make a seed.

Seeds of Inspiration "Eradicator". Memorial Indians/20151208.

Now that we have seen a few stories related to "Creativity", we really attract. How?

What was the inspiration behind the "Innovation" which motivates people to succeed?
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 limit.
• Ask each group to read out what they have written.
• Ask the debrief questions.
• 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 Facilitator
• Source for stories on innovations: http://www.wd.com/germany/31/anwendung-nachrichten-20151208.
Example 2:
The due
time,
She
declared
Anki
•
•
•
•

Does this sound like
•
•
•
•
•

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

1.6: Time Management

Describe effective

List the traits of effective
decisions
Discuss the benefits
of effective
decisions

He has
His
to

She
decided
Anki
•
•
•
•

I would love to start my dream business; but, I just do not have

I had so much to do, so I could not deliver that or

I want to go for a walk and exercise, but I just do not have th

I
can never get

Example

Examples:

He has
His
to

She
decided
Anki
•
•
•
•

I would love to start my dream business; but, I just do not have

I had so much to do, so I could not deliver that or

I want to go for a walk and exercise, but I just do not have th

I
can never get

Example

Examples:
LED Light Repair Technician

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

Activity
• Conduct a group discussion based on the above examples.
• Direct the discussion on how to prioritize work and manage 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 me? How does it help?
• What happens when you don't manage your effectively?
• Do you find it difficult to prioritize your work?

Say
• Discuss the benefits of me management given in the Participant Handbook.
• Let's learn effectively time management with the help of an activity.

Activity
- 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 me, however unimportant it may be.
  • If they are large tasks, break them into smaller 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.
You have two grids as shown 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 todo list and put it into one of the four categories.

What do these categories depict?

- Category 1: Urgent/Important
  - This 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 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.
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 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 me. Tell the group to wind up quickly if they go beyond the given time limit.

Activity Description:

How can we balance tasks between the four categories? How to manage their through this grid?

Category 1: Urgent/Important to Try to keep as 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 to 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 to 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 tactics of effective time management techniques given in the Participant Handbook.
Facilitator Guide

Summarize

Discuss the trials of effective management and management techniques as given in the PArcipa Handbook.

Notes for Facilitator

Here is a short story. You can conclude the session narrating the story. To make it more interesting you can perform the demonstration and discuss the story.

One day an expert in 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; care 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, start high, or in the morning tomorrow, when you're 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 5.1.7: Generator Management**

**Unit Objectives**

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

- Discuss the importance of generator management
- Describe generator operation strategies
- Discuss pressure and suction strategies for generator management

**Resources to be Used**

- Participant Handbook

**Ask**

- What is a generator? Is a generator good or bad?
- Is a generator normal or abnormal behaviour? How can a generator harm you?
- Why is it important for veterinarians to manage their generator?

**Say**

- Talk about a generator and the importance of generator management as discussed in the Participant Handbook.

**Let's do a small activity.** This is an individual activity.

- Think of the incidents and situations that a generator had and hurt you.

- Do you remember any incident in which you physically or mentally hurt your career or relationship.
Facilitator Guide

**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 relationships?
- 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**

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<th>Technique 3</th>
</tr>
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</tr>
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<td>Listen</td>
<td>Excuse yourself</td>
<td>Go for a swim</td>
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<tr>
<td>Relax</td>
<td>Avoid the situation</td>
<td>Write in a journal</td>
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**Notes**

- **Facilitator Guide**
- **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 relationships?
  - 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.

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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

• Now, let's discuss the problems and solutions 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.

• Congratulate each individual for sharing their points.

• Ask the audience to applaud for them.

• Ask descriptive 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.
Facilitator Guide

Ask

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

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

Notes for Facilitator
- Encourage the participants to share information about their 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 5.1.8: 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 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 too 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 employees 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 analyze the case scenario and then find an appropriate solution to the problem.
This will be a group activity.

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 analyze and discuss the case amongst them and find a solution to the given problem.
Explain their discussion should result in getting answers for the following questions:

- What were/were the cause(s) of stress?
- Was the stress avoidable or manageable under the given circumstances?
- If yes, how do you think the stress could be avoided (managed)?
- If no, then why?

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 the 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 end the call or finish the reports on me.

Scenario 2
While paying his overdue bills, Rahul realized 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 coping 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.
Arpit is a young entrepreneur who started doing business through Facebook. He has not been able to get a good deal in his family had been in business. Arpit’s boss warned him of the consequences and the challenges of an easy decision to leave a comfortable job at once and look for newer pastures. 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. He has been trying to prepare himself, but the new experiences come with unknown variables. Sheela calls the house. Rahul says, “Do you think that the stress could be avoided (managed)?” She answered, “I am not sure. The stress seemed avoidable, but now I am not sure. I think it was avoidable. Was the stress avoidable or manageable under the given circumstances?”
• Then discuss the issue identified and the proposed solution.

• Post presentation, the other groups may ask questions to the group that presented.

• Congratulate each group for sharing their points.

• Ask the audience to applaud for them.

• Ask debrief 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.

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.

Debrief:

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 alternates 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 Sheela 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.
Ask the participants what they have learnt from this exercise/ a
Close the discussion by summarizing the

Not all stress is harmful; good stress is actually energizing. This was a case of life’s

or hero stress, which is an important example of good stress. You may have heard

things in which a person performs an impossible feat of physical strength in order to save

stress-causing blockage, as seen in the case of Arpit Paudel, a 30-year-old electrical engineer from Nepal

in 2011. The building he was working in collapsed due to an earthquake, and he

managed to extricate his wife from the rubble, despite having been severely injured himself. This

was Rakesh undergoing in this case?

Was the stress avoidable or manageable under the given circumstances?

What kind of stress was Rakesh undergoing in this case?

What was the result of the stress?

Was the stress avoidable or manageable under the given circumstances?

What kind of stress was Rakesh undergoing in this case?
• Keep printed copies of the activities/scenarios ready for the session.
• Put down the debrief 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 5.2: 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
Facilitator Guide
UNIT 5.2.1: 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 equivalent 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.

Summary
• 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.

• Conduct a practical session.
• Ask the participants to assemble in the computer lab.
• 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.
• Ensure the participants complete the practical exercises assigned.
Facilitator Guide

UNIT 5.2.2: MS Office and Email: About MS Office

Unit Objective
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 the required applications

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.

Micr osoft 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.

Micr osoft 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 on 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 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?
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.

Ask the participants to assemble in the computer lab.

Explain the working of Outlook on a real system.

Demonstrate how to create an email ID.

Demonstrate how to write new mails, send mails.

Demonstrate how to use MS Office applications to create a letter and send it as an attachment in an email.

Demonstrate how to use other MS Office applications.

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.

Ask the participants what they have learnt from this exercise/activity.

Ask if they have any questions.
UNIT 5.2.3: E-Commerce

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 how Digital Media campaigns 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 Systems 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
• 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 transactions through payment gateways.
• Conclude the discussion by mentioning how important e-commerce has become in our day to day transactions.

E-commerce activities can be classified based on the types of participants in the transactions.

Discuss "Types of E-commerce" from the Participant Handbook.

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.

E-commerce activities bring a host of benefits for both, retailers and customers.

Discuss benefits of e-commerce from the Participant Handbook.

The majority of the population that uses e-commerce activities lives in er1 and er2. To encourage the use of digital money in er3 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.

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 rented or shared. 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, you will incur:

- 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 me and the cost to manage these activities.

Small 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

- Demonstration 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, SBI buddy, Freecharge, etc.
- Many other forms of digital money are also coming up in the market like mobile apps, Aadhaar card-based payments, etc.
LED Light Repair Technician

Do

- Demonstrate how to make and receive payments through digital models like PayPal and Stripe.

Ask

- Why do you think people started using digital money instead of hard cash? Is demonstration 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 in the world.
  - 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.
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 5.3.1: Personal Finance – Why to Save?

**Unit Objective**
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 1:**
Suhani works in a good company and earns Rs. 30,000 per month. She always saves Rs. 5,000 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 at least Rs. 40,000. Suhani says to her family not to worry and that she has about Rs. 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?
Facilitator Guide

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 for 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 a 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 efficient manner?
• Do you want to learn how to save money and use it efficiently?

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:** Why will you use the money?
  - **Part 2:** How will you use the money that you have saved?

**A**

- You are earning Rs. 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 Rs. 8,000 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.

**A**

- 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 Details**

- 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?

**Discuss the importance of personal finance and why it is important to save money.**
You can summarize the session by discussing:

- The importance of monsoon.
- Why monsoon.
- How the monsoon system can be used for different purposes.
Unit 5.3.2: Types of Bank Accounts, Opening a Bank Account

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 classmate 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.
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 explain the different types of bank accounts?

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

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

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.

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?

Menon 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 into groups of four or six.

PART 1: FILLING 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 Description:
- 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 me.
- Tell the group to wind up quickly if they go beyond the given time limit.

Summary:
- 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.

G2v2 2 45 3 ^MA
**Sample Bank Account Opening Form**

<table>
<thead>
<tr>
<th>Account No.:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of the Branch:</td>
<td></td>
</tr>
<tr>
<td>Village/Town:</td>
<td></td>
</tr>
<tr>
<td>Sub District / Block:</td>
<td></td>
</tr>
<tr>
<td>Name District:</td>
<td></td>
</tr>
<tr>
<td>State:</td>
<td></td>
</tr>
<tr>
<td>S S A Code / Ward No.:</td>
<td></td>
</tr>
<tr>
<td>Village/Town Code:</td>
<td></td>
</tr>
<tr>
<td>Name of Village/Town:</td>
<td></td>
</tr>
</tbody>
</table>

**Applicant Details:**

<table>
<thead>
<tr>
<th>Full Name</th>
<th>Mr./Mrs./Ms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Name</td>
<td>Last Name</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Name of Spouse/ Father</td>
<td></td>
</tr>
<tr>
<td>Name of Mother</td>
<td></td>
</tr>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>Pin Code</td>
<td></td>
</tr>
<tr>
<td>Tel No.</td>
<td>Mobile</td>
</tr>
<tr>
<td>Date of Birth</td>
<td></td>
</tr>
<tr>
<td>Aadhaar No.</td>
<td>PAN No.</td>
</tr>
<tr>
<td>M N R</td>
<td>GA Job Card No.</td>
</tr>
<tr>
<td>Occupation/Profession</td>
<td></td>
</tr>
<tr>
<td>Annual Income</td>
<td>No. of Dependents</td>
</tr>
</tbody>
</table>

---

*Sample Form with sample data filled out.*

---

*Table with various banking related fields filled out with sample data.*
<table>
<thead>
<tr>
<th>Detail of Assets</th>
<th>Owning House</th>
<th>Y/N</th>
<th>Owning Farm</th>
<th>Y/N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Y/N</td>
<td></td>
<td>No. of Animals</td>
<td>Any other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Existing Bank A/c. of family members / household</th>
<th>Y / N</th>
<th>If yes, No. of A/cs. ________</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Kisan Credit Card</th>
<th>Whether Eligible</th>
<th>Y / N</th>
</tr>
</thead>
</table>

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

<table>
<thead>
<tr>
<th>Name of Nominee</th>
<th>Relationship</th>
<th>Age</th>
<th>Date of Birth in case of minor</th>
<th>Person authorised in case to receive the amount of deposit on behalf of the nominee in the event of my /minor(s) death.</th>
</tr>
</thead>
</table>

**Place:**

**Date:**

**Signature / LTI of Applicant**

**Witness(es):**

1. __________________________
2. __________________________

*Witness is required only for thumb impression and not for signature*
UNIT 5.3.3: Costs: Fixed vs. Variables: What are Fixed and Variable Costs?

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 costs with examples. Let us do a small activity.

Team Activity

1. Rent
2. Telephone bill
3. Electricity bill
4. Machinery
5. Insurance
6. Office supplies/原材料
7. Employee salaries
8. Commission personnel for every unit sold
9. Credit card fees
10. Vendor bills
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 turn to identify whether it is a fixed or variable cost.

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 costs with the help of an activity.

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 Details

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?
Facilitator Guide

• 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 them. Tell the group to wind up quickly if they go beyond the given time limit.

Notes for Facilitator
• Answer for the activity— Ide n tify 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)
In this unit, participants will be able to:

• Describe the main types of investments
• 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 invest the money otherwise he will have to pay income 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 saving schemes. She goes to the bank manager to discuss the best products in which she can invest.
Facilitator Guide

Ask

• How do I invest, insurances and taxes differ from each other?

Say

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

• We will have an activity.

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 questions.

Notes for Facilitator

Questions for the quiz

1. Mr. Das gets monthly return on one of his insurance policies. Name the policy?

2. What are bonds?

Bonds are instruments used by public and private companies to raise large sums of money.

3. Who issues the bonds?

Private and public companies issue the bonds.
Facilitator Guide

UNIT 5.3.5: Online Banking, NEFT, RTGS, etc.

Unit Objective
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 the time to stand in bank queues. That's where Online Banking comes in.

• Discuss "What is online banking?" from the Participant Handbook.

• There are various advantages of online banking:
  o It saves time, as you need to visit the branch.
  o You can conduct your banking transactions safely and securely without leaving the comfort of your home.
  o Online Banking also gives you round the clock access.
  o 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.
• Tell the class the various features of online banking:
  o 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.

One of the biggest advantages 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.

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 aspects of online banking.

Ask the participants if they have any questions related to what they have talked about so far.
Facilitator Guide

UNIT 5.4: Preparing for Employee & Self-Empliment

Key Learning Outcomes

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

1. Discuss the steps to follow 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 5.4.1: Interview Preparation: How to Prepare for an Interview?

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

- Discuss the steps to follow prior to an interview.
- Resources to be used
  - Participant Handbook
  - Ask
  - Have you ever attended an interview?
  - How did you prepare for 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 the 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.

**Activity 1**
- Introducing Yourself
  - 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 participants 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:
  o Any work experience that you might have
  o A brief summary of your educational qualifications
  o Your strengths and achievements
  o Any special projects that you might have been part of

• The following topics should be avoided during an introduction:
  o Detailed description of your family (unless you are specifically asked to do so)
  o Too much information about your weaknesses
  o Information that is not true

Do

• Congratulate each participant for sharing their points.

• Ask the audience to applaud for them.

• Ask detailed questions to cull out information from each group.

• Keep a check on me.

Activity 2

• Planning the right fit at the right time

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?
• 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.
Facilitator Guide

UNIT 5.4.2: Preparing an Effective Resume: How to Create an Effective Resume?

Unit Objective
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/resume discussed in the Participant Handbook.

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 active 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.
In the first section, we have already discussed the steps involved in creating a resume. Now let's prepare a resume for the candidate details given here.

**Case Activity**

1. **Candidate:**
   - Name: Nipesh
   - Age: 15
   - Address: Chandiwar, Bhopal
   - Email: nipesh@example.com

2. **School:**
   - Name: Senior Secondary School
   - Address: Bhopal
   - Years: 2007-2010

3. **Trainings:**
   - Access Management
   - IT Management

4. **Achievements:**
   - Won House Sport Tournament, 2008
   - Won 1st Prize in Art and Craft Competition, 2009

5. **Activities:**
   - Sangai Festival Volunteer, 2008
   - National Level Swimming Competition, 2009

6. **Community Service:**
   - Volunteered at a local charity, 2008

7. **Personal Skills:**
   - Good communication skills
   - Teamwork

8. **Personal Information:**
   - Date of Birth: April, 1988
   - Gender: Male
   - Father's Name: Mr. Nipesh Singh
   - Mother's Name: Mrs. Meera Singh

9. **Contact Information:**
   - Phone: 988XXXXX01
   - Address: Chandiwar, Bhopal

**Resume Preparation:**

- **Name:** Nipesh Singh
- **Address:** Chandiwar, Bhopal
- **Email:** nipesh@example.com
- **Phone:** 988XXXXX01
- **Objective:** Looking for a job as a Mobile Access Technician

**Education:**
- **Year:** 2007-2010
- **School:** Senior Secondary School, Chandiwar, Bhopal
- **Subjects:** English, Hindi, Science

**Trainings:**
- **Years:** 2007-2010
- **Institutions:** Access Management, IT Management

**Achievements:**
- **Year:** 2008
  - **Activity:** House Sport Tournament, 1st Prize
- **Year:** 2009
  - **Activity:** National Level Swimming Competition, 1st Prize

**Interests:**
- **Sports:** Swimming, Cricket
- **Hobbies:** Reading, Music

**Personal Information:**
- **Date of Birth:** April, 1988
- **Gender:** Male
- **Father's Name:** Mr. Nipesh Singh
- **Mother's Name:** Mrs. Meera Singh

**Contact Information:**
- **Phone:** 988XXXXX01
- **Address:** Chandiwar, Bhopal

**Summary:**
Nipesh Singh is a 15-year-old student from Senior Secondary School, Chandiwar, Bhopal. He has been actively involved in school activities and has achieved several awards. He is looking for a job as a Mobile Access Technician and is skilled in communication and teamwork.
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.

Summary

• 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 Facilitator

• 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' resumes and suggest necessary changes.
• Suggested example for the case presented:
  Nipesh Singla
  #1XX7, Secretary XX-D
  Chandiagarh-160018
  Mobile No: 91-988XXXXX01
  E-mail: xxxxxxxxxxxxxla@gmail.com

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

Professional strengths:
• Proficient in housekeeping
• Experienced in and capable of working with a diverse work force
• Team player and friendly in nature
• Successful working in a multicultural environment
• Detail oriented, flexible, and adaptable
• Knowledge of Microsoft World, Excel, Access and PowerPoint

Educational background
• Diploma in Hotel Management and Catering, Westwood School of Hotel Management, Zirakpur
• High School, Government Senior Secondary School, Sector 15, Chandiagarh
Facilitator Guide

Professional Internship:

- 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.

Variable Work:

- Student volunteer at children's hospital in Chandigarh.

Nipesh Singla
OBJECTIVE

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

• Participant Handbook

Say

Tell the participants you will provide them with interview situations 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.
• Congratulations each participant for giving their input.
• Ask the class to applaud each time a team has completed their role play.
• Keep a check on me.

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:
  o What is your name?
  o Tell me something about yourself?
  o Can you tell me something about your family?
• Then, the interviewer will bluntly ask the following questions:
  o How do you explain this huge gap in your resume?
  o What is the reason for this?
  o 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 the situation given.

Role Play – Situation 2
• The interviewer will start by asking the interviewer a few generic questions such as:
  o What is your name?
  o Tell me something about yourself?
  o Can you tell me something about your family?

• Then, at the end of the interview, ask the interviewer:
  o 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 to 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 the situation given.

Role Play – Situation 3

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?

2. Then, lean forward, clasp your hands on the table, and in a sov voice ask the interviewee:
   - Did you ever experience any neglect or disregard from your previous office? In other words, did you suffer because of your office or team display of favoritism?

Say De-brief:

1. Keep this in mind: Do not criticize anyone during an interview.
2. You are free to express your opinion, however, your language, answers, body language, and the tone of your voice should remain constructive and neutral.
3. Since criticism will show you in negative light, you should keep your answers honest yet diplomatic.
4. You can tackle such questions by saying, “I got along well with most of my faculty and peers.”
• 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?

• After asking a few academic or job-related questions, ask the interviewee:
  - If you get this job, what do you expect from you?

Role Play – Situation 6

• The interviewer will ask the interviewee:
  - Do you have any questions for me?
Say a brief:

- If the interviewer asks you questions, respond to the interviewer by providing a reason 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 interviewee to a close, ask the interviewee:
  - Do you have any questions for me?

Say a 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.

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 answers, tone, and gestures neutral.
- Maintain your composure while answering personal questions.

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 allowed for each situation is 30-35 minutes.

**Activity**

**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?

**Summary**

- 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 5.4: Work Readiness – Terms and Terminology

Unit Objective
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 off the left and contractor of employee 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 all the words that come to your mind.

Activity Details
• Have the participants read out the words they have written
• Encourage all the participants to participate in the activity
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.

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 it is important to know the workplace terms?

How do they help?

Can the words be categorized further?

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 flowchart of the hiring process of MND Company.

Activity Debrief

Ask the groups to share the flowcharts and the new terms they added while preparing the flowchart.
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 me. Tell the group to wind up quickly if they go beyond the given me 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 a part 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, compensation, deduction, employee training, holidays, layoff, leave, maternity leave, mentor, none, paternity leave, and memo.

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 me. Tell the group to wind up quickly if they go beyond the given me limit.

Summary

• 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.
Facilitator Guide

UNIT 5: Understanding Entrepreneurship

Key Learning Outcomes

1. Facilitate a brainstorming session to identify market opportunities.
2. Discuss the importance of adaptability in entrepreneurship.
3. Describe how to develop a business plan.
4. Explain the role of leadership in entrepreneurial ventures.
5. Discuss the concept of resilience in entrepreneurial failures.
6. Discuss the importance of networking in business growth.
7. Discuss the significance of risk assessment in entrepreneurial decisions.
8. Explain the process of entrepreneurial problem-solving.
9. Discuss the types of entrepreneurship and their applications.
10. Facilitate a role-play exercise to demonstrate entrepreneurial skills.
11. Discuss the concept of risk management in entrepreneurial ventures.
12. Explain the importance of innovation in business success.
13. Discuss the role of teamwork in entrepreneurial ventures.
14. Facilitate a case study discussion on successful entrepreneurs.
15. Discuss the importance of self-reflection in entrepreneurial learning.
16. Explain the role of technology in modern entrepreneurship.
17. Discuss the significance of legal considerations in business ventures.
18. Explain the importance of sustainability in entrepreneurial ventures.
19. Discuss the concept of entrepreneurship education.
20. Explain the role of entrepreneurship in economic development.
21. Discuss the impact of entrepreneurship on societal well-being.
22. Facilitate a debate on the ethics of entrepreneurship.
23. Discuss the concept of entrepreneurship and economic growth.
24. Explain the role of policy support in entrepreneurship.
25. Discuss the importance of innovation in entrepreneurship.
26. Explain the role of market research in business planning.
27. Discuss the concept of scalability in entrepreneurial ventures.
28. Explain the role of mentorship in entrepreneurial success.
29. Discuss the concept of entrepreneurial failure and learning.
30. Explain the role of funding in entrepreneurial ventures.

End of UNIT 5
At the end of this unit, the 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

Let's start this session with some interesting questions about Indian entrepreneurs.

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 (autocratic style)

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 into 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 Facilitator

• 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 etc.

• Discuss about various schemes and policies by the Government of India for entrepreneurs.
LED Light Repair Technician

UNIT 5.5: Leadership and Teamwork

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 employee for the breakdown whereas a leader fixes breakdown.
• A boss depends on authority whereas a leader depends on goodwill.
• A boss says “I” and a leader says “We.”
• A boss drives employee whereas a leader coaches them.
• A boss takes credit whereas a leader gives credit.
Facilitator Guide

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.
• 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 the importance of teamwork in entrepreneurial success as discussed in the Participant Handbook.

• Summarize by summarizing about the importance of teamwork for employees.

  o Teamwork helps in reducing stress for the employees.
  o Teamwork helps employers in generating more numbers 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 5.5.3: Communication: Listening & Speaking: The Importance of Listening Effectively

Unit Objectives
At the end of this unit, the 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
- Participant Handbook

Activity
Activity – Chinese Whisper

Step 1:
Form a circle.

Step 2:
Start a whisper chain. Any one participant will whisper a message into his/her neighbor's ear. No one else must hear the message. The message can be serious or downright silly.

Step 3:
The next person who hears 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 realizes the real message.

Compare and have a great game! Ask 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 the same at the end of the game.
- The barriers to communication like language, distraction, 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.

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.

Let's play a game to understand effective listening process better.

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.

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ashes.
If you were given another chance, what would you have said to your mouth, and then pause. Where do you even begin?

You are in the activity where you are talking to a businessman. He has financed a lot of small business ventures and can finance your new start-up.

Elevator Pitch:

Acvity

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Tell the thing(s) you'll need to vary around the classroom. Explain your mind while listening to someone.

There is a difference between hearing and listening. If you don't listen properly, the meaning will be lost. Remember: you are not thinking about the story you want to tell. You are thinking about the story they want to tell you.

There was once a student who was looking for a job at a hotel and you bumped into your former client who is a saleswoman. You sell LED Light Repair Technician to her. She is interested and wants to know more.

If you were to explain your elevator pitch, it would be:

1. You are looking for a job.
2. You have experience in LED Light Repair.
3. You are interested in learning more.

LED Light Repair Technician

You present your product to the audience of 2. LED Light Repair Technician.

4. You emphasize the importance of LED lights in today's world.
5. You mention the benefits of using LED lights.
6. You highlight the cost-effectiveness of LED lights.
7. You conclude with a call to action.

4. You can add a visual aid to support your pitch.
5. You can ask for questions or feedback from the audience.
6. You can provide a demonstration or sample of the product.

fi0_3e1a05AH5y3y303A

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1. You start by introducing yourself and your experience.
2. You explain the problem you are solving and the benefits of your product.
3. You highlight the unique features of your product.
4. You discuss the competition and how your product stands out.
5. You provide testimonials or case studies.
6. You emphasize the importance of partnering with you.

You end by thanking the audience for their time and asking for any questions.
As discussed in the Facilitator Guide, the Participant Handbook should be accessible and used with an audience.

Example: "Put your access mechanisms on!" When we ask people to do this, they won't know what to do or how to do it. When they do this, they're not happy. But if we ask people to do it, they'll know how to do it.

This works for us, as well as other similar companies. When people buy products, they need to know what they are. Then, we can start to see feedback on the products. We do this, so we know what we're selling. After that, we can use the products and see how well they work.

At this time, 0% of our people are using the products. We could do this, but we'll be a late adopter.

Then, we've started to use the products. We'll use the products and see how they work. Then, we can use the products and see how well they work. Then, we'll see how well they work. Then, we'll see how well they work. Then, we'll see how well they work.

As a result, we'll see how well they work. Then, we'll see how well they work. Then, we'll see how well they work. Then, we'll see how well they work. Then, we'll see how well they work.

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Unit 5.5: 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.
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 setting 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
Debrief 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.
**Facilitator Guide**

• Discuss the important steps to negotiate as given in the Participant Handbook.

• 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.

• 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.

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**Problem solving Scenario 1**

Avinash has a Mobile Repair Store in Allahabad. His outlet is one of the most popular 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 Aggarwal, your staff members do door to door selling and organise marketing campaigns in local markets. Your brand has established its name in the last few years.

Recently, a 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 agarbattis than they paid for.

Another set of customers lodged complaint about the misconduct and rude behaviour of a particular staff member. 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?
The bank loan accordingly. You receive a negotiable offer, but the bank doesn’t agree on your start-up idea. It is not a revenue generating model. You have taken an appointment to meet the manager and show your proposal skills to get your loan approved. However, the manager suggests that you haven’t considered the costs of your business venture. The new person is demanding a salary that is 20% higher than what you were offered. You have interviewed a previous employee who could be a key member of your new venture.

Conducting the analysis with your new employee, you determine that the new person is essential to your team. Now you have an opportunity to make a significant impact on future projects. The new person is demanding a salary that is 20% higher than you were initially offered. You have interviewed a previous employee who could be a key member of your new venture.
Facilitator Guide

Co-urage participants to provide constructive criticism during their discussions.

Summarize:

• Wrap the unit up by summarizing the key points and answering questions.
Entrepreneurs and Opportunities

Unit Objectives

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

• Discuss how to identify new business opportunities
• Discuss how to identify business opportunities within their business

Resources

• 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 opportunities?

Say

• Let's talk about opportunity, common queries or concerns faced by entrepreneurs, ideas 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.
Facilitator Guide

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 you strengths?

Weakness

What are your weaknesses?

What do you compete to do better than you?

Opportunity

What opportunities are available to you?

Do you have solid financial support?

Do you think you can change your weakness into strength? How?

Do you think you can work on your threats? How?

Summary

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 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 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?
1. Let's learn more about these domains by conducting an activity.

2. You have to make a poster showing the components of the six main domains of entrepreneurship system.

**Team Activity**

- Making a poster showing the entrepreneurship 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 Details**

- Ask each group to display their poster and explain the key domains of entrepreneurship system.

![Diagram of entrepreneur key domains](image)

- **Ask:** What kind of government support ecosystem is available for entrepreneurship in India?

- **Say:** Discuss 'Make in India' campaign as given in the Participant Handbook.

**Key Domains of Entrepreneurship System**

1. **Market**
2. **Policy**
3. **Finance**
4. **Culture**
5. **Support**
6. **Human Capital**

![Diagram of entrepreneur key domains](image)
1. Divide the class into pairs.
2. Number each pair from 1 to 15.
3. Assign a scheme, same as their group number, to each group.
4. Ask them to read the scheme carefully and present it to the class.
5. Explain the purpose and duration of the activity.
6. Go around checking the progress of each group.
7. Set guidelines pertaining to discipline and expectations.

Activity Description:
- Ask each group to explain the scheme of their group to the rest of the class.

Summary:
- Summarize the unit by discussing the key points and answering questions the participants may have.
UNIT 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?

Examples
• 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.
लेड लाइट रिपायर टेक्निश्यन

• रोहित और सुरेश के लिए किस रिक्स के लिए लिखें?
• उपरोक्त के साथ पांतिक के साथ 'रिक्स एप्प्लीटेशन एंड रिसिलिएन्स' को व्याख्या करें।
• रिक्स एप्प्लीटेशन एंड रिसिलिएन्स के लिए रचना के साथ समाधान में पांतिक के साथ लिखें?

पैकेज एक्टिविटी

• यह एक ब्यूडेट एक्टिविटी है?
• पूर्व में, आप राय ढिरुबाई अंबानी और कार्सनबाई पाटल के सफलताओं को पढ़ा।
• अंबानी ने अपनी वर्तनी छोड़ और रिलायंस के साथ अपनी कंपनी की शुरुआत की।
• पाटल ने अपनी वर्तनी छोड़ और निर्मा ब्रांड की शुरुआत की।
• उन्होंने किस रिक्स के लिए लिखे?
• उनके लिए रिक्स के किन संभावित कार्यक्रमों को ध्यान में रखने का क्रम है?
• दोनों की कंपनियों के लिए रिक्स एप्प्लीटेशन लिखें?

aktiviti कॉन्फरन्स

• किसने बड़ा रिक्स लिखा?
• कंपनियों के लिए रिक्स एप्प्लीटेशन के सबसे बड़े अंतर क्या है?

मुद्दा

• उपरोक्त की अवधारणा का वर्णन करें?
• कंपनियों के लिए रिक्स एप्प्लीटेशन के लिए क्या है?

पैटर्न

• दोनों की कंपनियों द्वारा कितने सफलताओं का अर्थ है?
• विशेषता कहाँ है?

कृपया लिखें?

• इसे वर्गीकृत करें?
• एक ब्यूडेट एक्टिविटी क्या है?
• अंबानी और पाटल के सफलताओं के लिए पांतिक के साथ क्या है?
• आपका लिखित वर्णन को कमाल में क्या करें?

स्वीकृति
Facilitator Guide

• 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 called 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 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 move 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.

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.
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 the key points of the unit.

- Ask the participants what they learned from the activities.
- Clarify any questions or doubts they might have.
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 for 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.
LED Light Repair Technician

Ask

• Have you felt or experienced fear?
• What led you to feel that emotion?
• How did you handle it?

Say

• Let's learn 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 Facilitator

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/accept 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 debriefing 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 debriefing 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.

Summary

- Wrap up the unit after summarizing the key points and answering questions.
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 5.6.1: 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 tourists 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 Debrief

• 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?

Discuss “The 4Ps of Marketing” with the participants as given in the Participant Handbook.

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)
Facilitator Guide

Keeping the 4Ps of Marketing in mind, what marketing strategy will you design to sell the pen?

Activity Debrief

• 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 an 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 them. Tell the group to wind up quickly if they go beyond the given time limit.

Activity Debrief

• 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 what 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 5.6.2: Business Concepts

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

• Recall basic business terminology
• Discuss the Business 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.

Summary
• Summarize the unit by discussing the key points.

Notes for Facilitator

QUESTIONS FOR THE QUIZ
1. What does B2B mean?
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 element of the overall worth of a business called?
   Value.

6. You are buying a house. What type of transaction is it?
   Complete exchange.

7. How will you calculate the net income?
   Revenue minus expenses.

8. How is Return on Investment expressed?
   As per 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?
    \[ A = P(1 + rt); \text{R} = r \times 100 \]

13. What are the three types of business transactions?
    Simple, Complete and Ongoing Transactions.

14. The declining value of an asset over time is known as
    Depreciation.

15. What are the two main types of capital?
    Debt and Equity.
Unit 5.6.3: 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 successful business lies in 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:
  o Treating your customers with respect.
  o Being available as per their need/schedule.
  o Handling complaints effectively.
  o Building long-lasting relationships.
  o 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 product/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.
Facilitator Guide

- Instruct them to read the case carefully.
- The group is expected to analyze and discuss the case amongst them and find a solution to the given problem.
- Put down the discussion points (debrief 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 boom. 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 bouquet 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 bouquet have unique designs. Smita has to attend her cousin’s wedding; she goes to Rajni’s bouquet 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 realized 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?
Shailender 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 Shailender'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 realizes that she has not received the promised discount neither was there any mention of the free services. She immediately demands to see Shailender. When Shailender's head asks how much discount Vinita was promised, he realizes 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.
• Congratulate each group for the presentation/role play.
• Ask the audience to applaud for them.
• Keep a check on me. Tell the group to wind up the discussion quickly if they go beyond the given time limit.
• 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.
• 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.
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 limit did you set for your goal – 3 weeks, 3 years, 10 years?

**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 startup. What is your business idea?
Facilitator Guide

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 Parcian Handbook.
• Let’s understand it better with the help of an activity.

Team Activity

Wring 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.

MY BUSINESS PLAN

Executive Summary: What is your Mission Statement?

Business Description: What is the nature of your business?

Market Analysis: What is your target market?

Organization and Management: What is your company’s organizational structure?

Service or Product Line: What is the lifecycle of your product/service?

Marketing and Sales: How will you advertise and sell your products?

Funding Request: How much funding is required and from where?
LED Light Repair Technician

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 me. 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.

Summary
• 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.
• Keep the business plan format ready in a flipchart to display it during the activity.
LED Light Repair Technician

UNIT 5.6: Procedures and Formalities for Bank Finance

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
• 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 startup. 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 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.
- Crowdfunding: Funds collected by consumers pre-ordering or donating for starting the business.
- Angel investors: Individual or group of investors investing in the company.
- Venture capitalists: Professional management funds which invest in companies that have potential. They usually invest in a business again as equity.

Let us know 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.

• 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 Facilitator

• 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 nationalized bank’s website. Print sufficient copies to circulate it amongst the groups.

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 Annual I
6. CMA data for the last three years, estimates for current year and projection for the next
7. Term loan/DPG securities in Annual II
8. List of machinery in respect of machinery offered as security in Annual III
9. Additional details for export advances furnished in Annual IV
10. Property statements of all directors/partners/proprietor/guarantor
11. Copies of ITA of the company for the last three years
12. Copies of ITA/WTA of the directors/partners/proprietor and guarantor
13. Copies of certificates from banks and financial institutions certifying the liabilities with
14. Copy of board resolution authorizing the company to apply to your bank for the credit facilities mentioned in application
15. Copy of memo and arc 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 contract or seasonal industries.
Facilitator Guide

UNIT 5.6.6: 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 your 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 a 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, 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

- Design a matrix listing the topics and key words that are needed to run an enterprise effectively and smoothly.

Activity Debrief

- Have each group present their matrix.
- Encourage participants of other groups to ask questions 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 colored pen.
- Tell the participants that they need 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.

Summary

- 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 5.6.7: 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 me and don't let the discussion get sidetracked or lose track of me.

Ensuring all the questions are covered and discussed.

Give the participants 15 minutes to discuss and write.

• Keep a check on me. Tell the group to wind up quickly if they go beyond the given time limit.

Summary:

• 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.
Annexures

Annexure 1 – Training Delivery Plan
Annexure 2 – Assessment Criteria
Training Delivery Plan

Program Name: Certificate Course in LED Light Repair Technician

Qualification Pack Name & Ref. ID: LED Light Repair Technician (ELE/Q9302)

Version No.: V1.0

Version Update Date: 07-12-2015

Minimum Educational Qualification: Diploma

Maximum Educational Qualification: Diploma

Training Outcomes:

1. Find and repair component-level fault
2. Find and repair LED strip-level fault
3. Achieve productivity and quality standards
4. Interact with supervisor or superior
5. Coordinate with colleagues
6. Understand potential sources of accidents
7. Use safety gear to avoid accidents
8. Understand the safety procedures followed by the company
<table>
<thead>
<tr>
<th>Module Name</th>
<th>Session Name</th>
<th>Session Objectives</th>
<th>Reference Methodology</th>
<th>Tools/Ads</th>
<th>Duration</th>
<th>Facilitator-led</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Electronics Introduction to basic electronics</td>
<td>• Understand company's various policies like Health and Hygiene, environment, quality, fire and safety, child labur, incentives, personnel management, workflow, individual's role in organization, organization structure, profile of customer etc</td>
<td>• Identify the circuit components. • Understand the electrical properties of different components. • Calculate resistance by identifying the colour code. • Understand the functionality of coil. • Perform winding of coil. • Biasing of transistor. • Understand two working of Current</td>
<td>ELE/N9302 PC1, PC2, PC3, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, KA5, KB1, KB2</td>
<td>Multimeter, Diode, Resistor, Capacitor, Transistor (BJT, FET)</td>
<td>5 hrs</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Component</td>
<td>Quantity</td>
<td>Description</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>-------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capacitor</td>
<td>10µF 50V</td>
<td>Used for filtering and energy storage.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistor</td>
<td>10kΩ 1W</td>
<td>Used for resistance and current control.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transistor</td>
<td>NPN 2N2222</td>
<td>Used for switching and amplification.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transformer</td>
<td>1:1</td>
<td>Converts AC voltage to DC.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soldering Iron</td>
<td></td>
<td>Used for soldering connections.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soldering Ware</td>
<td></td>
<td>Used for soldering connections.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Desoldering Pump</td>
<td></td>
<td>Used for removing solder.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Facilitator Guide**

- **Amplification Circuit**
  - Perform design of filter.
- **Identify Types of LED**
- **Employability Skills**
  - Team Coordination
  - Perform planning, problem solving, team coordination, decision making, reflective thinking, critical thinking, multitasking, process disruption, and delays.
- **Improving Work Process**
- **Interact with Supervisor and Colleagues**
- **Follow Safety Standards**

**Introduction to Multimeter**

- Understand functionality of multimeter.
- Explain different modes of testing in multimeter.
- Ensure the probes of the multimeter are connected properly before any particular test.
- Handle regulated power supply unit.
- Follow proper safety methods before aching a device.

**Measuring Tools and Instruments**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC to DC Regulated Power Supply</td>
<td>Used for providing regulated power.</td>
</tr>
<tr>
<td>Ammeter</td>
<td>Measures current.</td>
</tr>
<tr>
<td>Voltmeter</td>
<td>Measures voltage.</td>
</tr>
<tr>
<td>Multimeter</td>
<td>Measures various electrical parameters.</td>
</tr>
<tr>
<td>Power Meter</td>
<td>Measures power consumption.</td>
</tr>
</tbody>
</table>
LED Light Repair Technician

• Understand precautions dealing with AC & DC current.

Assembling & Soldering Process
• Understand operation of SMT machine in case of replacement.
• Perform soldering of semiconductor devices following safety measures.
• Understand use of ESD gloves while dealing with LED's.

Test & Measurement
• Find the required test point while checking of an assembled circuit.
• Check proper connectivity while testing the driver circuit.
• Select proper temperature for soldering of components while using temperature controlling solder iron.
• Discuss with senior about any kind of major failure in a circuit.

AC to DC regulated power supply
AC to AC regulated power supply
LED Driver Tester
Stripper
Cuer
Screwdriver set

7 hrs
<table>
<thead>
<tr>
<th><strong>Facilitator Guide</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>• Complete Base Assembly, Completing Heat Sink Assembly, Joining base assembly with heat sink assembly</strong></td>
<td></td>
</tr>
<tr>
<td><strong>6</strong></td>
<td><strong>Test and Measurement</strong></td>
</tr>
<tr>
<td></td>
<td><strong>2</strong></td>
</tr>
<tr>
<td><strong>Intrduction to testing of assembled circuit</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>• Explain the principle of illumination from a LED.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Explain the operation of LED e.g. lumen, Flux, efficacy, CRI etc.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Perform testing of the above mentioned parameters using a lamp analysis system.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Replace malfunctioning LED identifying the reason of the malfunction.</strong></td>
</tr>
<tr>
<td><strong>ELE/N9302</strong></td>
<td><strong>PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, PC17, PC18, SA3, SA4, SA5, SB2, SB4, SB5</strong></td>
</tr>
<tr>
<td><strong>Demonstration</strong></td>
<td><strong>Stripper</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cutter</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Screwdriver set</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Pliers</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Multimeter</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Soldering pump</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Soldering iron</strong></td>
</tr>
<tr>
<td><strong>6 hrs</strong></td>
<td><strong>Service and Maintenance</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Fault analysis</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Explain various blocks of a LED light driving circuit.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Analyze the fault by approaching each block.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>• Select alternate spare in case of unavailability of components.</strong></td>
</tr>
</tbody>
</table>
**LED Light Repair Technician**

- Ensure the fault before demounting any element from the circuit.
- Continue the test process until the every test process is checked properly.
- Ensure that the repaired lighting system is ok before sending it to mechanical assembling.

### Basic Reading and Writing Skills

- Document the number of PCB, processed, components processed inwards and outwards, to have basic coordinate geometry for understanding X-Y coordinates on PCB, to deliver frame to next work process, red feeder charts and board designs, understanding BOM, to improve overall work process.

### Interaction with Customers and Colleagues

- Understand the requirements.
- Communicate effectively.
- Understand building of team.

### Projector

- Laptop

### 4 hrs

### Facilitator-led Discussion

### Demonstration

### 5 hrs
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Facilitator Guide</td>
</tr>
<tr>
<td>2</td>
<td>Teamwork coordination</td>
</tr>
<tr>
<td>3</td>
<td>Take feedback of customer satisfaction</td>
</tr>
</tbody>
</table>
Assessment Criteria for "LED Light Repair Technician" Job Role

Qualification Pack: ELE/Q9302

Sector Skill Council: Electronics Sector Skill Council of India

Guidelines for Assessment:

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council.

2. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportions of marks for Theory and Practical for each PC.

3. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

4. Individual assessment agencies will create unique question papers for theory and skill practical part for each candidate at each examination/training centre.

5. SSC will create unique evaluations for skill practical for every student at each examination/training centre based on these criteria.

6. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS.

7. 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.

8. In case of unsuccessful completion, the trainee may seek reassessment on the qualification pack.

Assessment Strategy:

<table>
<thead>
<tr>
<th>NOS</th>
<th>Performance criteria</th>
<th>Theory</th>
<th>Practical</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELE/N9302</td>
<td>Diagnose and repair fault in LED Light</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PC1. Connect the non-functional LED Light with the AC source and switch it on</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PC2. Check that there is no loose, de-soldered wires and connections if the light does not switch on</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PC3. Solder wires and make connections in case of loose, de-soldered wires and connections to make the light operational again</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PC4. Dismantle the LED light if no loose, de-soldered wires and connections are found externally</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PC5. Check the LED light engine with DC supply as per the voltage / current requirements of the product</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>PC6. Replace the LED light engine if it is found faulty</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

A11e112 e3,A 5',e54A
PC7. check the supply unit with AC supply / multimeter to find out the voltage / current output in case LED light engine is not found defective.

PC8. check voltage / current output at different seconds of the supply unit with multimeter to find out its damaged section in case of no voltage / current output found in supply unit.

PC9. check the components with multimeter individually of the section where voltage output is found to be less than desired / no output.

PC10. repair / replace the damaged components / SMPs.

PC11. check output voltage / current of the supply unit again with multimeter.

PC12. reassemble the LED light if repaired / replaced supply unit is found okay.

PC13. connect the non-functional LED Light with the AC source and switch it on.

PC14. check how many LED strips are non-functional / damaged from the array of LED strips in the light.

PC15. remove the glass shell from the LED light.

PC16. replace the burnt out / damaged LED strips.

PC17. check the LED array after connecting it with AC source and switching it on.

PC18. replace the glass shell on the LED Light and close it if all the strips are found operational.

PC19. correctly find the root cause of non-functional LED light and repair it in minimum possible manner.

PC20. document the fault diagnosis and repair process as per SOP.

PC21. assemble all the parts as per the product design to create LED luminary.

PC22. assemble the product right first time so that rework is not required.

PC23. meet 100% daily target of defect free assembled LED luminaries.

PC1. understand work requirements by receiving instructions from reporting supervisor.

PC2. understand standard operating procedure of the company.

PC3. escalate problems that cannot be handled including repetitive PCB defects, machine failures, potential hazards, process disruptions, repairs and maintenance of machine.

PC4. report work completed and receive feedback on work done.

PC5. resolve personnel issues.
### LED Light Repair Technician

**Work with superiors and colleagues**

- PC6. rectify errors as per feedback and minimize mistakes to zero in future
- PC7. communicate about process flow improvements, quality of output, product defects received from previous process, repairs and maintenance of tools and machinery as required and find technical solutions on specific issues
- PC8. handover completed work and deliver the work of expected quality despite constraints
- PC9. collect required spares and raw materials from tool room or stores
- PC10. deposit unused or faulty materials, parts and tools to stores
- PC11. assist colleagues where necessary and as per capability
- PC12. resolve conflicts with colleagues at work to achieve smooth workflow
- PC13. complete work in progress on feedback from quality or process departments
- PC14. put team over individual goals

**Total**

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>40</th>
<th>60</th>
</tr>
</thead>
</table>

**Follow safety standards**

- PC1. spot and report potential hazards on me
- PC2. follow company policy and rules regarding hazardous materials
- PC3. avoid accidents related to use of potentially dangerous chemicals, gases, sharp tools and hazards from machines which involves exposure to possible injuries such as cuts, bites, stings, minor burns, etc.
- PC4. handle with care when using an electrical drill and sharp cutting objects
- PC5. understand which safety gear must be used for a particular task
- PC6. eye, respiratory and hearing protection as per company policy
- PC7. use safety gear such as respirator, mask, skull caps, gloves, goggles, jacket, etc., as prescribed for the job
- PC8. comply with standard health and safety procedure followed in the company while handling equipment and hazardous materials and tools or situations
- PC9. understand and follow the evacuation procedure properly such as fire drills, emergency evacuation procedures, first aid to self and others, etc., which help in case of an emergency
- PC10. take adequate safety measures while on work to prevent accidents
- PC11. ensure zero accidents in work

**Total**

<table>
<thead>
<tr>
<th></th>
<th>10</th>
<th>40</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC</td>
<td>Description</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>PC13</td>
<td>Ensure no loss for company due to negligence</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC14</td>
<td>Ensure proper machine maintenance, work process achieving quality outputs as per the company standard</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC15</td>
<td>Improve process flow to reduce anticipated or repetitive hazards</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC16</td>
<td>Report on mishandling of tools, machines or hazardous materials and on electrical problems that could result in accident</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC17</td>
<td>Escalate about any hazardous materials or things found in the premises</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC18</td>
<td>Report about any breach of safety procedure in the company</td>
<td>TA</td>
<td>PA</td>
</tr>
<tr>
<td>PC19</td>
<td>Follow electrostatic discharge (ESD) measures for electronic component safety</td>
<td>TA</td>
<td>PA</td>
</tr>
</tbody>
</table>

**Total** 100 40 60
LED Light Repair Technician

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 Pracal.

Allocation of Marks. Explain that they will be assessed on Theory and Skills Practice.
Address: 602-608, 6th Floor, Ansal Chambers-II. Bhikaji Cama Place, New Delhi-110066
Email: info@essc-india.org
Website: www.essc-india.org
Phone: +91-11-46035050

Price: ₹