



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



Facilitator Guide



Sector
Rubber Industry

Sub-Sector
Tyre

Occupation
Moulding / Curing

Reference ID: RSC/Q0211, Version 1.0
NSQF Level: 4

Pneumatic Tyre Moulding Operator

Published by

ABC Company Ltd.
7, NSDC Marg,
New Delhi - 110002
Email:

Website:
All Rights Reserved,

First Edition, March 2016
ISBN 978-1-111-22222-45-7

Printed in India at
XYZ Company

Copyright © 2016

Rubber Skill Development Council
PHD House, 4th Floor, Siri Fort Institutional Area
New Delhi - 110016
Email – info@rsdcindia.in
Phone - +91-11-41009347-48

Disclaimer

The information contained herein has been obtained from sources reliable to Rubber Skill Development Council. Rubber Skill Development Council disclaims all warranties to the accuracy, completeness or adequacy of such information. Rubber Skill Development Council shall have no liability for errors, omissions, or inadequacies, in the information contained herein, or for interpretations thereof. Every effort has been made to trace the owners of the copyright material included in the book. The publishers would be grateful for any omissions brought to their notice for acknowledgements in future editions of the book. No entity in Rubber Skill Development Council shall be responsible for any loss whatsoever, sustained by any person who relies on this material. The material in this publication is copyrighted. No parts of this publication may be reproduced, stored or distributed in any form or by any means either on paper or electronic media, unless authorized by the Rubber Skill Development Council.





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

Rubber Skill Development Council (RSDC) acknowledges the contribution of all the individuals and organizations who have contributed in the preparation of this Guide.

We would like to acknowledge the efforts of our Governing Council members and RSDC Content Committee members as well as our Industry Partners who guided us in preparation of the Guide.

Sincere appreciation is extended to all experts who had provided subject matter inputs and reviewed the individual modules. The efforts of Team Inspireedge India is specially appreciated for supporting the development of the Guide.

The preparation of this Guide would not have been possible without the strong support of Rubber industry, their extremely valuable feedback and inputs.

We are grateful to organizations like; Bhargave Rubber Private Ltd, Madurai Acme Enterprises (P) Ltd and Ramsons Cycles Pvt Ltd for their efforts in reviewing and endorsing this Facilitator Guide.

About this Guide

Moulding Operator is very important and critical job in Tyre Manufacturing. Proper knowledge about the job is needed to ensure quality of tyre to be made. A good Pneumatic Tyre moulding operator ensures adherence to all procedures of tyre moulding and save cost by reducing rejections.

This guide is designed for trainers to support them to train and upgrading the knowledge and basic skills of candidates for 'Pneumatic Tyre Moulding Operator' in 'Rubber Industry' sector. All the training to be given by trainer are covered in this guide. Upon successful completion of this course the candidate will be eligible to work as 'Pneumatic Tyre Moulding Operator'.

This guide is designed to provide the necessary knowledge and skill inputs for a trainer to train candidates in an organized and disciplined manner by following safe working practices.

This guide shall give in-depth practical information to trainer, which will be very useful in training the candidates for 'Pneumatic Tyre Moulding Operator'.

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

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

Symbols Used



Steps



Time



Tips



Notes



Objectives



Do



Ask



Explain



Elaborate



Facilitation Notes



Learning Outcomes



Say



Demonstrate



Exercise



Team Activity



Resources



Activity



Summary

Table of Contents

S.No	Modules and Units	Page No
1.	Introduction to Rubber & Tyre Industry (Bridge Module)	1
	Unit 1.1– Getting Familiarized	3
	Unit 1.2– Rubber and Tyre Industry	6
	Unit 1.3– History of Tyre and Tyre Industry in India	19
	Unit 1.4– Tyre Basics	23
	Unit 1.5– Process of Tyre Manufacturing	32
	Unit 1.6– Equipment Used in Tyre Making	37
	Unit 1.7– Job role of a Pneumatic Tyre Moulding Operator	41
2.	Prepare Pneumatic Tyre Moulding Machine (RSC/N1101)	43
	Unit 2.1–Tyre moulding Machine and its Parts	45
	Unit 2.2–Tyre moulding Machine Preparation for Tyre Moulding	51
3.	Perform Pneumatic Tyre Moulding Operation (RSC/N1102)	61
	Unit 3.1 –Initial Checks for Tyre moulding machine	63
	Unit 3.2 – Operating instructions and safety precautions for tyre moulding	68
4.	Perform Post Pneumatic Tyre Moulding Operation Activities (RSC/N1103)	75
	Unit 4.1 –Post Tyre Moulding Activities	77
	Unit 4.2– Disposal of Rejected Tyre	81
5.	Carry out Housekeeping in Rubber Product Manufacturing (RSC/N5001)	85
	Unit 5.1 –Need and benefits of Housekeeping	87
	Unit 5.2 –'5S' Methodology of Housekeeping	91
6.	Carry out Reporting and Documentation (RSC/N5002)	97
	Unit 6.1 – Day to day activities documentation	99
	Unit 6.2 – Organisation procedure for documentation	104
	Unit 6.3 – Communication in Organisation	108
	Unit 6.4 – Work Management	114



Table of Contents (Contd.)

S.No	Modules and Units	Page No
7.	Carrying Out Quality checks (RSC/N5003)	117
	Unit 7.1– Inspection Equipment for Tyre Inspection and Inspecting Tyre	119
	Unit 7.2– Defects in Tyre	124
8.	Health and Safety (Bridge Module)	132
	Unit 8.1– Hazards in Tyre Industry	133
	Unit 8.2– Health and Safety Requirement at work	141
	Unit 8.3– Tyre Moulding Safety Equipment	144
	Unit 8.4– Handling Fire other Emergencies	149
9.	Carry out Problem Identification and Escalation (RSC/N5004)	156
	Unit 9.1– Problem Identification and Escalation to Supervisor	158
10.	Employability & Entrepreneurship Skills	162
	Unit 10.1– Personal Strengths & Value Systems	165
	Unit 10.2– Digital Literacy: A Recap	194
	Unit 10.3– Money Matters	202
	Unit 10.4– Preparing for Employment & Self Employment	217
	Unit 10.5– Understanding Entrepreneurship	232
	Unit 10.6– Preparing to be an Entrepreneur	254
11.	Annexure	272
	Annexure I – Training Delivery Plan	273
	Annexure II – Assessment Criteria	284





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



1. Introduction to Rubber & Tyre Industry

Unit 1.1 – Getting Familiarized

Unit 1.2 – Introduction to Rubber Industry

Unit 1.3 – History of Tyre and Tyre Industry in India

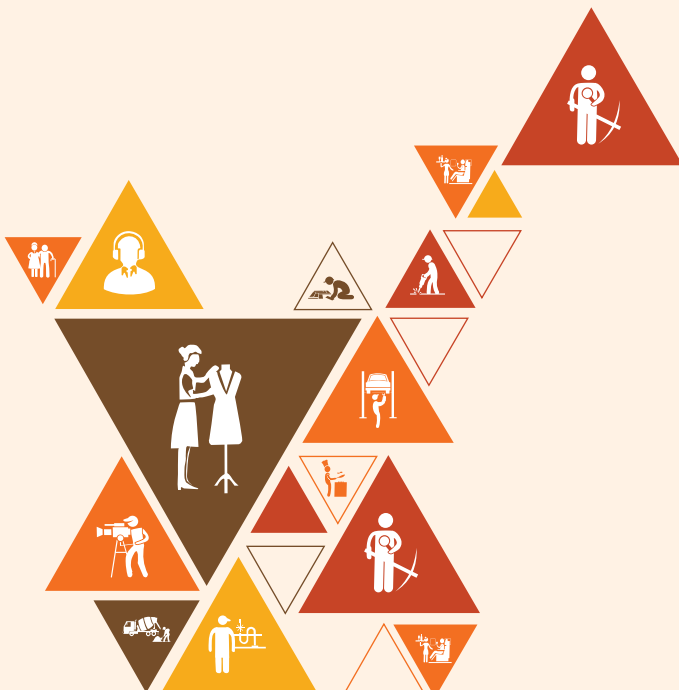
Unit 1.4 – Tyre Basics

Unit 1.5 – Process of Tyre Manufacturing

Unit 1.6 – Equipment used in Tyre making

Unit 1.7 – Job Role of a Pneumatic Tyre Moulding

Operator



Bridge Module

Key Learning Outcomes

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

- 1 Getting familiarized with Student
- 2 Discuss the Tyre industry in India
- 3 Define all major players of Tyre manufacturing
- 4 Identify and define Tyre specifications
- 5 Explain the difference between Cross-ply Tyre and Radial Tyre
- 6 Define material used in Tyre manufacturing
- 7 Discuss and explain Tyre manufacturing
- 8 Explain equipment used for Tyre manufacturing
- 9 Define Roles and responsibilities for Pneumatic Tyre Moulding Operator

UNIT 1.1: Getting Familiarized

Unit Objectives

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

1. Get introduction of students
2. Build rapport with students
3. Create Rules for class

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Notes for Facilitation

- Start the first session with very high energy.
- Be ready with course curriculum.
- Make list of benefit from the course for students.
- It would be good if you have some success stories of previous batch students, it will create enthusiasm in new students.
- Make list of expectation from students.
- Prepare some questions related to the job roles for asking from students for generating curiosity, for example – Ask student if they know what is Tyre made of or how Tyre is made?
- Be ready for answering any question related to the job role, you should give a feeling to the students that you have authority over the subject.
- Ensure all the resources, such as white board, marker or projector are in working condition before students arrive.
- Create some tyre related stories to start the session for making the first session interesting and engaging.
- Arrive early in class before students.
- Start class on time and close the session on time, so that you can give clear message of valuing your and students time.

Do

- Make the small circle of students.
- Welcome all the participants and appreciate them for choosing this course.

- Introduce yourself with your name, qualification and work experience.
- Give details of Objectives of this course.
- Give details of today's session and what they are going to learn.
- Give Safety Instructions to be followed during class.
- Brief them about the rules of class and Do's and Don'ts.
- Encourage them to share their thoughts and doubts now and during the process of this course.

Ask



- Ask all students to introduce themselves.
- Ask their expectations from the course.

Notes for Facilitation



- Make rules for class, for ex-
 - All student will come on time
 - In case of leave, students will inform atleast a day in advance
 - No talk over mobile will be allowed in class
 - Mobile will always be in silent / switch off mode in class
 - No gossip in class
 - Any break in class will be taken with trainer permission only
 - If any student wants to say anything, he/she will raise his/her hand. He / she will only speak when trainer ask for it.
- You can add any other rules, which will increase effectiveness of training.
- Objectives of this Program is that after completing the course, the student will be able to –
 - Understand requirement of skilled work force for making strong India
 - Discuss about related Sector and Sub Sector
 - Describe the job role in detail
 - Perform all the responsibilities of job role
 - Get developed as a job ready person
 - Get recognized certificate for acquired skill
 - To get job in related industry based on certificate received after completing the course.
- Some of the Roles and Responsibilities of a Trainer are –
 - To provide training as per QP and NOS defined.
 - To clear all doubts of students related to the job role during training
 - To create required discipline in class
 - To ensure health and safety of all students during class training and field visits
 - Provide maximum practical exposure to students for job role

Say



- Thank the students for their participation.
- Inform them rules of the class.

- Inform them about course curriculum.
- Inform them about assessment and assessment procedure.
- Inform them about your Role and responsibility.

Notes for Facilitation

- To know students better, you can ask their hobbies, the sport they like, the sports person or film star they like. It will help you open them up and create some bonding.
- Learn their name, this is very important in order to have a feeling of connectivity.
- Create your own rules for class. Rules should be flexible, still ensure discipline in the class.
- It is necessary to let students know about assessment procedures so that they can do study in line with that and assessment should not come as a surprise.
- Anticipate questions from new students and prepare in advance.
- You can also inform them about PMKY, Skill India mission and NSDC, so that they feel connected to a bigger cause of nation building.
- Create your own notes for improvement in next session.
- If students appear bored then have some activity in class.
- Stay organised in class, student give respect to organised teachers.
- Use variety of teaching techniques, so that you can engage all the students.
- Set high but realistic expectation from students.

Activity

- Conduct a familiarization activity.
- Ask the students to make group of 5 students.
- Explain the purpose and duration of the activity

Activity	Time	Resources
Introduction to team, sharing of contact details so that every student has minimum 4 contacts in class, which help them in case they are absent from class and other help	30 Minutes	Notebook, pen

UNIT 1.2: Introduction to Rubber and Tyre Industry

Unit Objectives

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

- Discuss the Rubber
- Define types of Rubber
- Describe Natural Rubber and process of extracting it from Rubber Tree
- Explain Types of Natural Rubber
- Explain Synthetic Rubber and types of common used Synthetic Rubber
- Explain Reclaimed Rubber
- Describe different uses of Rubber
- Discuss Rubber industry in India
- Explain consumption of Rubber
- Discuss about various Rubber bodies and Associations

1.2.1: Rubber

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster
- Sample of different RSS sheets
- Sample of Crepe Rubber
- Sample of TSR Rubber
- Sample of Synthetic Rubber
- Sample of Reclaimed Rubber
- Sample of Products made of Rubber
- Tyre samples with Sidewall coding
- Tyre Samples with Cut Sections
- Field visit to Tyre Manufacturing Factory
- Different machines used in Tyre manufacturing

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Ask



- Ask students what they know about rubber.
- Ask students about products made of Rubber.



Fig. 1.2.1. Rubber

Say



- Rubber is a polymer material, which has elastic properties.
- It is also called as 'Caoutchouc'. It normally has long chain molecules known as "polymers" and the combination of elastic and polymers, which give it another name called "elastomers". Forms of poly-isoprene that are used as natural rubbers are terms as 'Elastomers'.
- Products made from rubber have a flexible and stable – three-dimensional chemical structure and are able to withstand under force large deformations.
- The material can be stretched repeatedly to at least twice its original length and upon immediate release of the stress, will return with force to approximately its original length. Under load the product should not show creep or relaxation.
- Besides these properties the modulus of rubber is from hundred to ten thousand times lower as compared to other solid materials like steel, plastics and ceramics. This combination of unique properties gives rubber its specific applications like seals, shock absorbers and tyres.
- Based on the source of raw material, there are two kinds of rubber, natural rubber (NR) and synthetic rubber (SR). However, Reclaimed rubber is produced from treating the scrap rubber.

Notes for Facilitation



- You could ask the students what they know about Rubber and products made by Rubber.
- Give students some time to think about how the Rubber industry has grown in the last five years.
- Set the context and describe the industry trends in Rubber.

1.2.1.1: Natural Rubber

Ask



- Ask students whether they have seen the Rubber Plant.
- Ask students about places where rubber plants grow.

Say



- Natural Rubber is mainly harvested from rubber plants.
- There are many plant species that generate natural rubber and there are many other plants that contain rubber latex.
- For quality and economic considerations, Rubber Plant is a major source of natural rubber. 'Latex' is a sticky, milky white, liquid material.
- The process used for extracting latex is called 'Tapping'.



Fig. 1.2.2. Rubber Plant



Fig. 1.2.3. Collection of rubber by tapping process

Explain



- Explain Rubber tree plantation.
- Explain requirement of climate for growing Rubber trees.
- Explain areas favorable for growing Rubber tree in India.
- Explain process of Tapping.

Demonstrate



- Show Photographs of Rubber Tree Plantation.
- Show Photographs / Video of Tapping Process.

Say



- Latex is further processed for making rubber, which can be used for making some useable products.
- Latex is processed in following ways –Sheets, Creps, Block Rubber, Preserved latex concentrates
- Most of natural rubber is sold in form of Sheets, Creps and Block Rubber.
- Sheets are the easiest form to produce; hence it is the most saleable form of natural rubber.
- There are 2 types of sheets –Ribbed Smoked Sheets (RSS), Air Dried Sheets (ADS)
- Out of above types, Ribbed Smoked Sheets are more common in sale.
- There are five grades of Ribbed Smoked Sheets based on quality. These grades are established by International Rubber Quality and Packing conference.
- Only completely dried sheets are allowed to be sold in this category. Based on different conditions,

1.2.1.1.1: Sheets

Ask



- Ask students how Natural Rubber Sheets are produced.
- Ask students about purpose of making Sheets.

Explain



- Explain process of Latex processing for making Rubber.
- Explain Types of Dried natural Rubber form
- Show samples of RSS and ADS
- Explain difference in five grade of RSS
- Explain purpose of creating Sheets



Fig. 1.2.4. Rubber sheets

Demonstrate



- Show sample of Natural Rubber sheet to students.

1.2.1.1.2: Creps

Ask



- Ask students how Creps are produced.
- Ask students about purpose of making Creps.

Say



- Creps is derived from coagulated latex / field Coagulam, when it is rolled many times between rollers and then dried in Air.

Example



There are many types of creps,

- Pale Latex Creps,
- Estae Brown Creps,
- Thin Brown Creps,
- Thick Blanket Creps,
- Flat Blanket Creps,
- Standard Flat Bark Crepe
- Pure smoked Blanket Crepe.

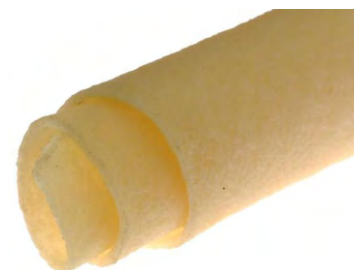


Fig. 1.2.5. Rubber creps

Demonstrate

- Show sample of Crepes to Students.

1.2.1.1.3: Technically Specified Natural Rubber

Ask

- Ask students meaning of TSR.
- Ask students about purpose of creating TSR.

Say

- Technically Specialized Natural Rubber (TSR) is natural Dried Rubber which is graded based on technical specification.
- It was initially proposed by ISO (International Standard Organisation) and then Malaysia adopted it in 1965. Later on all natural rubber producing countries adopted the system.
- In this system, first letter of country name is used for making code. For ex - Indian natural rubber is coded as ISNR (Indian Standard Natural Rubber).



Fig. 1.2.6. TSR rubber

Explain

- Explain specifications included in TSR Rubber.
- Explain different countries specification of TSR Rubber.

Demonstrate

- Show sample of TSR to Students.
- Show specifications of TSR to Students.

1.2.1.2: Synthetic Rubber

Ask

- Ask students what is Synthetic Rubber.

Say



- Synthetic Rubber, as the name suggests, it is manmade Rubber, which is derived from petroleum, coal, oil, natural gas and acetylene.
- It has more than 10 major classes, many of these are copolymers i.e. polymers consisting of more than one monomer.
- Initially, Styrene-butadiene copolymers (SBR) synthetic rubbers were invented. Which is one of the widely used elastomer.
- Synthetic Rubber is used as a replacement for natural rubber in many cases, especially when improved material properties are needed.

Example



1. Emulsion Styrene Butadiene (ESBR)
2. Butadiene Rubber (BR)
3. Solution Styrene Butadiene (SSBR)
4. Isobutylene Isoprene Butyl (IIR)
5. Acrylonitrile Butadiene (NBR)
6. Ethylene Propylene diene monomer (EPDM)



Fig. 1.2.7. Synthetic rubber

Demonstrate



- Show sample of Synthetic Rubber to Students.

Say



- Used or Reclaimed rubber is the product, which is recovered from the processing of vulcanized scrap rubber tyres, tubes and miscellaneous waste rubber goods.
- The Process includes use of heat and chemical agents.
- The process also includes heavy mechanical working. This reclaimed rubber has plasticity, which is near to the original plasticity.
- This Rubber can be compounded, processed and re-vulcanized as fresh Rubber.
- During process of reclamation, the molecular weight of the elastomeric component is substantially reduced. But the chemical un-saturation of finished reclaim is essentially unchanged from that of the original vulcanized scrap.



Fig. 1.2.8. Reclaimed rubber

Explain



- Explain briefly the process of producing reclaimed Rubber.
- Explain different products used to produce reclaimed Rubber.

Demonstrate



- Show samples of Reclaimed Rubber to Students.

1.2.2: Uses of Rubber

Ask



- Ask students the uses of Rubber.

Say



- Rubber is a widely used product now a days. It is used in automobiles, household and industrial applications.

Example



- Tyres and Tubes - Automobile and agriculture Tyres and tubes are the largest consumers of rubber. This category consume around three fourth of total rubber consumption.
- 'Under the bonnet' products for automobile - It includes, Door and window profiles, noses, bells, matting, flooring and dampeners (anti-vibration mounts).
- Conveyor Belt – for various industrial use.
- Hoses and pipes – for air and water circulation.
- Medical equipment - Gloves (medical household and industrial), toy balloons, rubber bands
- Adhesives – Many manufacturing industries and products also use Rubber product as adhesives. It is mostly used in paper and the carpet industry
- Textile industry – Rubber is also widely used in Textile industry.
- Shock absorbers – Impact absorbing property of rubber is very useful in shock absorber application.
- Machine mounting pads – it is widely used as machine mounting mount, which helps in reducing vibration transfer from machine to floor.



Fig. 1.2.9. Rubber products

Demonstrate



- Show different products made of rubber to students.

1.2.3: Overview of Indian Rubber Industry

Ask



- Ask students position of India in world for producing Natural Rubber.
- Ask students about world's top Rubber producer country.

Elaborate



- Initially Rubber industry started in South America during 19th Century. Where it was restricted for a long time from export.
- In 1876, English brought it to India, Sri Lanka and other parts of Asian countries. Initially Rubber trees were planted in Kolkata and then later it was grown in coastal areas of Kerala, Tamil Nadu and Karnataka.
- Rubber product manufacturing started in India, in the year 1920. Now, Rubber industry is one of the key industries of the Indian economy.
- India is the 4th largest producer of natural rubber in the world.
- India is the second largest consumer of natural rubber.
- India is the fifth largest consumer of natural rubber and synthetic rubber together in the world.
- India is the world's largest manufacturer of reclaimed rubber.
- India and China are consuming 48% of total world's Rubber production.

1.2.3.1: Overview of Indian Rubber Industry

Ask



- Ask students to name some of the big Rubber parts producing companies.
- Ask students about highest Rubber producing states of India.

Say



- India produces approx. 7 Lakh tons of rubber. In India there are approximately 6000 Rubber product companies.
- Out of these some 35 are large scale companies, 320 medium scale and more than 5000 are small scale industries.
- These companies do total turnover of around Rs. 12,000 Crore. These units are manufacturing more than 35000 rubber products, employing four Crore people, which also includes 22000 technically qualified support personnel.

- India's rubber industry has growth rate of 8-9% per annum.
- India consumes nearly 17 lakh tones of rubber (including natural, synthetic and reclaim) annually for producing a wide range of rubber products.
- Tamil Nadu (3.57 lakh tones), Kerala (2.10 lakh tones) and Maharashtra (1.98 lakh tones) are top three rubber consuming states in the country.

1.2.3.2: Trend of Rubber Consumption

Elaborate

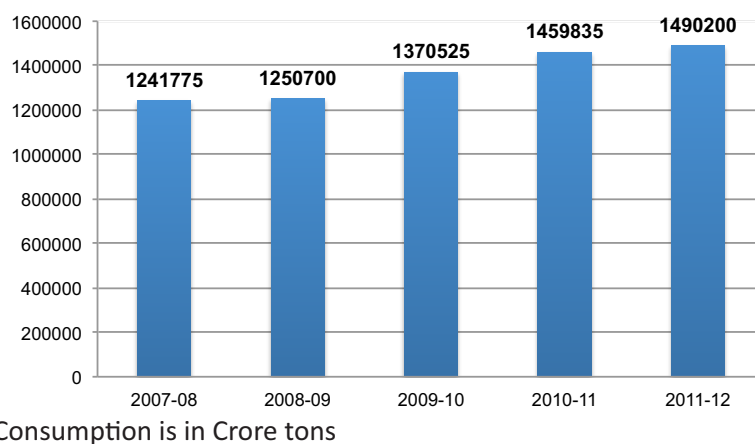


Fig. 1.2.10. Trend of rubber consumption

1.2.4: Rubber Consumption in India

Ask

- Ask students the sector name, which consumes biggest part of Rubber.

Explain

The major sectors consuming rubber in India are as follows:

- 1 Automotive tyre sector
- 2 Bicycles tyres and tubes
- 3 Footwear
- 4 Camelback and latex products
- 5 Belts and hoses
- 6 Rest of the products

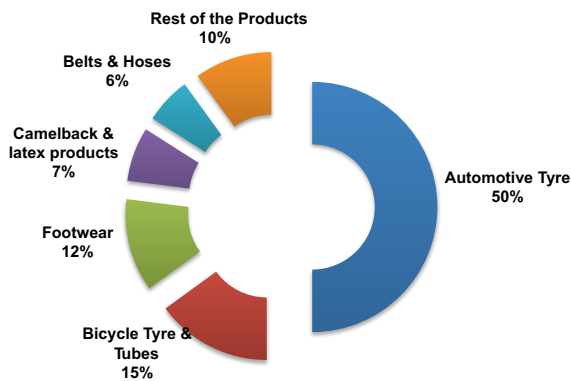


Fig. 1.2.11. Rubber consumption details

1.2.5: Rubber Act, Rubber Promotion and Development Bodies

Ask



- Ask students the names of prominent Rubber Bodies.
- Ask students about purpose of having various Rubber Associations for Rubber.

Say



- Indian Rubber industry is regulated by some acts. Also there are some bodies that are helping rubber industries in development.

1.2.5.1: Rubber Board

Elaborate



This act was made in 1947. With some changes it was named as 'Rubber Board' in 1955. The act was amended in 1960 for making changes in rates and procedures of cess on Rubber. Again the act was amended in 1982 for making provisions for appointing chairman and Executive Director. All departments of board come under control of Chairman.



Fig. 1.2.12. Rubber board

1.2.5.1.1: Functions of Rubber Board

Explain



Activities of Rubber Board -

- Promotion of activities for development of rubber in India.
- Without prejudice to the generality of the foregoing provision the measures referred to therein may provide for:

Explain



- Undertaking, assisting or encouraging scientific, technological or economic research.
- Training students in improved methods of planting, cultivation, manuring and spraying.
- The supply of technical advice to rubber growers.
- Improving the marketing of rubber.
- The collection of statistics from owners of estates, dealers and manufacturers.
- Securing better working conditions and the provision and improvement of amenities and incentives to workers.
- Carrying out any other duties, which may be vested with the Board as per rules made under this Act.
- It shall also be the duty of the Board:
 - To advise the Central Government on all matters relating to the development of the rubber industry, including the import and export of rubber.
 - To advise the Central Government with regard to participation in any international conference or scheme relating to rubber.
 - To submit to the Central Government and such other authorities as may be prescribed, half yearly reports on its activities and on the working of this act,
- To prepare and furnish such other reports relating to the rubber industry as may be required by the Central Government from time to time.

1.2.5.2: Chemicals & Allied Products Export Promotion Council (Capexil)

Elaborate



This organisation was made for promotion of Rubber and Chemical based and related products. Capexil is engaged in making export promotion strategies. Capexil do in depth research of overseas markets and promote exports through participation in various trade fairs and bilateral meets.



Fig. 1.2.13. CAPEXIL

1.2.5.3: All India Rubber Industries Association (AIRIA)

Elaborate



AIRIA is one of premier industrial associations. It was established in 1945 and since then working for promoting Rubber and Tyre industry. It has Pan India Presence and more than 1200 members. AIRIA organizes 'The India Rubber Expo'. This event is biannual event, which provides a platform for Suppliers, Machine Manufacturers, Raw material Suppliers, Rubber Testing Equipment Suppliers, Consultant and exporters.



Fig. 1.2.14. AIRIA

1.2.5.4: Automotive Tyre Manufacturer Association (ATMA)

Elaborate



As the name suggest, this is a association of Automotive Tyre manufacturers. Having headquarter in New Delhi, it is not-for-profit organisation, which works for safeguarding the interests of Tyre industry. It works as a liaising agency between Tyre industry and Government. Also it actively works for promoting and raising Tyre industry voice in media. It represents the companies producing 90% of Tyre production of India.



Fig. 1.2.15. ATMA

Explain



Main objectives of ATMA are –

- To promote and protect the interest, growth and development of the rubber industry.
- To foster Co-operation among individuals and units engaged in the manufacturing of rubber goods with a view of advancing and safeguarding the interest of the industry.
- To provide common forum for exchange of views amongst the members.
- To arrange conferences, exhibitions, trade delegations, factory visits, techno-commercial talks and allied activities.
- To investigate, collect and circulate information and statistics relating to the industry.
- To represent officially to Government the views of the industry on all matters affecting or likely to affect the industry.
- To help the members in solving the difficulties faced in procuring raw materials.
- To support or oppose legislative or other measures likely to affect the industry.
- To disseminate information through the official organ, periodicals, circulars, etc.

1.2.5.5: Rubber Skill Development Council (RSDC)

Elaborate



RSDC has been constituted under the aegis of National Skill Development Corporation (NSDC), in collaboration with All India Rubber Industries Association (AIRIA) and Automotive Tyre Manufacturers Association (ATMA). Main motto of RSDC is to identify and fulfill skill development needs in the Rubber sector. The RSDC encourages the industry to employ skilled and certified manpower. It is identifying labour market skill gaps, frame Occupational Standards, facilitate development of practical and high quality training content, ensure adequate availability of faculty through Train The Trainer initiatives, build accreditation and certification mechanisms and encourage capacity building through private sector participation. In the process, RSDC is preparing catalogue of skill sets, range and depth of skills to facilitate individuals to choose from.



Fig. 1.2.16. RSDC

Explain



- The purpose of RSDC is to ensure the generation of skilled manpower in both the tyre and the non-tyre sectors
- Provide employment opportunities to youth across the nation
- Create career paths in roles existing within the unorganized and organized segments of the rubber industry
- Ensure active participation of the industry in absorption of skilled manpower generated through RSDC.

Activity



- Conduct a 'Rubber Type identification activity'.
- Ask the students to make group of 5 students.
- Students have to identify different types of Rubber from available samples (20 samples).
- One group of Students will have 30 minutes for identifying the types of Rubber. 10 minutes for presentation.
- Appreciate identification skills of students and tell correct identification, if any sample is wrongly identified.

Activity	Time	Resources
Rubber Type identification	2 Hours	Rubber Samples, Notebook, pen

UNIT 1.3: Introduction to Rubber and Tyre Industry

Unit Objectives

1. Discuss the History of Tyre development
2. Explain types of Tyre being sold in India
3. Describe the major tyre brands in India
4. Describe the ratio of Tyre sales in terms of vehicle Segment and customer segment
5. Describe the share of business of all major Tyre sellers in India

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Ask

- Ask the students the use of Tyres seen by them in different vehicles
- Ask the students different Tyre brands known to them

1.3.1: History of Tyre

Say

- After long use of initially made fully rubber tyre, in 1845 RW Thomson invented and patented Pneumatic tyre.
- In this tyre, it was possible to fill Air and it used to absorbed jerks coming from road. In 1895, pneumatic tyre was first time used in automobiles.
- Michelin invented radial Tyres in 1948.

1.3.2: Consumption of Tyre

Say 

- Tyre is one of the fastest consuming parts of any automobile, be it Truck, Bus, Car, Bike or Scooter.
- Apart from these vehicles, it is also get consumed in other equipment like, Bicycle, Rickshaw or other unconventional vehicles.

1.3.3: Tyre Companies in India

Ask 

- Ask students to name some of the Tyre companies producing Tyre in India.

Say 

- Dunlop was the first Tyre Company to put up plant in India in 1926 in West Bengal.
- After that in 1961 Madras Rubber Factory also called 'MRF' started manufacturing Tyres in Chennai.
- Now approximately 40 big organisations are producing Tyres apart from many un-organised sector companies.

Example 

- 1- Apollo Tyres
- 2- Bridgestone
- 3- Ceat
- 4- Goodyear
- 5- JK Tyres
- 6- Michelin
- 7- MRF
- 8- TVS

Notes for Facilitation 

- You can tell students the figure of Tyres being produced per annum currently in India, which is more than 10Crore.
- You can tell students Total turn over of Tyre industry, which is more than 30,000 Crores.
- You can tell Export details of Tyres, which is that tyres are also being exported to 65 countries worldwide.

1.3.4: Tyre Demand in India

Explain



Tyre Demand - By Vehical Segment in 2015

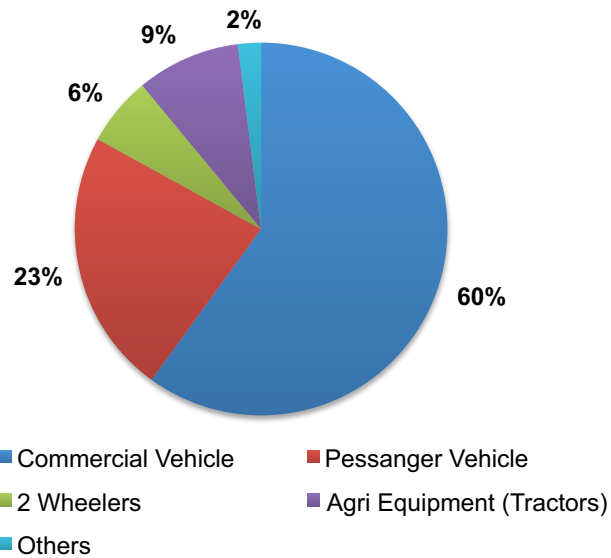


Fig. 1.3.1. Tyre demand by vehicle segment

Explain



Tyre Demand - By Customer Segment in 2015

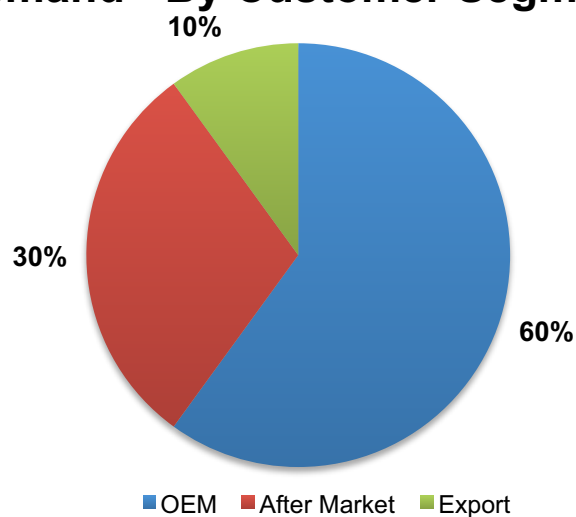


Fig. 1.3.2. Tyre demand by customer segment

1.3.5: Tyre Market Share in India

Explain

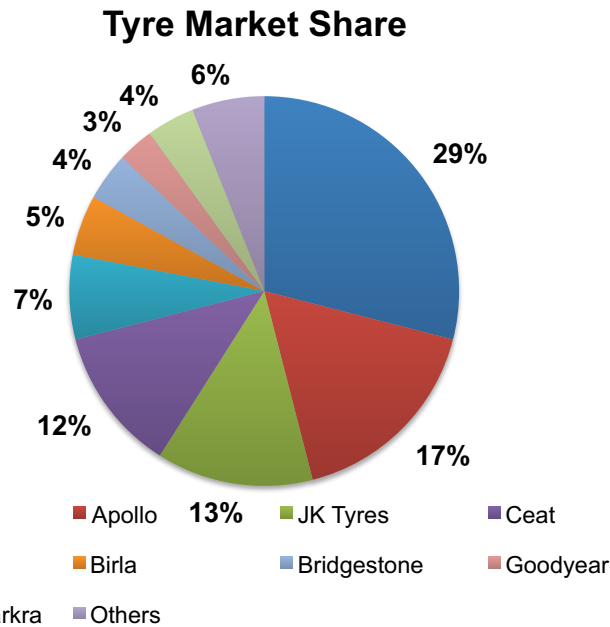


Fig. 1.3.3. Tyre market share

Activity



- Conduct a 'Tyre Manufacturer brand identification activity'.
- Ask the students to make group of 5 students.
- Students have to identify Tyre brands from the available samples.
- One group of Students will have 30 minutes for identifying the Logo. 10 minutes for presentation.
- Appreciate identification skill of students and tell correct identification, if any logo is wrongly identified.

Activity	Time	Resources
Tyre Manufacturer identification	2 Hours	Tyre Manufacturer Logos, Notebook, pen

UNIT 1.4: Tyre Basics

Unit Objectives

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

1. Explain what is Tyres
2. Describe the constituent material of a Tyre
3. Explain the Parts of Tyres
4. Define Types of Tyres being used
5. Describe the meaning of Sidewall coding of a Tyre
6. Describe the specification of Tyres

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster
- Tyre samples with Sidewall coding
- Tyre Samples with Cut Sections

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Ask

- Ask students what is their understanding about Tyre.
- Ask students as per them, what are the materials used in Tyre making.
- Ask students purpose of using Tyre.

1.4.1: What is Tyre

Say

- Tyre is ring shaped part, which is used in almost all automobiles.
- It is mounted on wheel and it remains in contact with road.
- Its function is to provide traction between Road and wheel and to absorb the jerks to some level, while vehicle is on the move.
- It also protects Wheel rim from getting damaged and support the weight of the vehicle.



Fig. 1.4.1. Tyre

Demonstrate

- Show different Type of Tyres to Students.
- Demonstrate Students the specialty of tyre as per their applications in vehicle.

1.4.2: Material of Tyre

Ask

- Ask students materials used in making Tyre.
- Ask students reason of making tyre from Rubber.

Say

- Normally Tyre is made of Rubber – Natural or Synthetic rubber such as styrene butadiene copolymer and mixed with some chemical compounds such as silica and carbon black.
- Carbon black is a black pigment, which is made due to incomplete burning of natural gases; it makes 20-25% of Tyre in terms of weight.
- Carbon black provides tyre resistance from wear and tear.
- It also acts as a reinforcement agent.
- To add tensile strength to Tyre it also has cords, which are normally made of steel, polyester, cotton or nylon.
- There are also many chemicals used to make rubber compound, which helps tyre to protect itself from aging and harmful effects of ultraviolet rays.
- The use of these chemicals also helps in expediting the curing process.

1.4.3: Parts of Tyre

Ask

- Ask students name of Tyre parts.
- Ask students about purpose of Treads in a Tyre.

Say

Any normal Tyre has following Parts –

- 1- Tread
- 2- Bead
- 3- Sidewall
- 4- Belt
- 5- Ply
- 6- Shoulder
- 7- Sipe / Groove
- 8- Rib



Fig. 1.4.2. Tyre parts

Elaborate

Tread - This is the outer most portion of tyre. This is the area of tyre which remains in contact with road surface while moving. Tread provide grip to tyre with the road. The design and size of tread is based on the road conditions, for example - if a vehicle is designed to run on muddy surface or off road, it will have bigger tread blocks, while the vehicle which is supposed to run on normal road will have smaller grooves. The vehicles which are supposed to run in controlled conditions, like only dry condition (racing cars / formula one), will have no grooves. Tread with no groove will provide maximum contact with road, hence maximum friction. Higher friction will enable vehicle to transfer maximum force to vehicle to achieve higher speeds.

Bead - This is internal periphery of tyre. This is made of high tensile steel cords. These cords are coated in rubber. This part of tyre gets fitted on Wheel rim. The contact with Rim, remains Airtight in tubeless tyres.

Sidewall - This is part of tyre, which joins Tread with bead. This part gives lateral support to tyre. Sidewall has coding of tyre specification and tyre company logo.

Belt - This is a mesh like part, which is made of woven sheets of steel, coated with rubber. This is placed around the tyre and gives strength, durability and puncture resistance to tyre.

Ply - These are made of woven fiber and polyester cords with rubber coating. There are multiple layers of these plies around tyre. This makes basic structure of tyre and gives durability to tyre.

Shoulder - This is area between sidewall and tread. Construction of this part is very critical while vehicle takes turns.

Sipe/Groove - Grooves are made between tread blocks. Purpose of grooves is to keep vehicle stable while running in watery and muddy conditions by dispersing water and mud. Small grooves made in tread blocks itself are called Sipe. Purpose of sipe is to provide extra stability to tyre in watery and muddy conditions. Sipe and groove also helps in tyre stability in ice condition.

Rib - This is made in center part of tyre, around outer periphery, for providing extra reinforcement.

Demonstrate

- Show Students cut section of Tyre to demonstrate the use of different type of material used in tyre making.
- Demonstrate different ingredients of tyre making.

- Demonstrate different parts of Tyre –
 - Tread
 - Bead
 - Sidewall
 - Belt
 - Ply
 - Shoulder
 - Sipe / Groove
 - Rib

1.4.4: Types of Tyre

Ask



- Ask students the types of Tyres being produced nowadays.
- Ask students about difference in Radial Tyre and Bias Tyre.

Say



- Initially Tyre were made in Cross-ply design,
- Now a days Radial Tyres are in use.

Elaborate



Cross-ply or Bias Tyre –

Radial is relatively new Technology, although almost all vehicles are having Radial Tyres. Still we need to understand the difference between the two.

In Cross-ply Tyre, Tyre is made of multiple layer of Rubber. The layers of Rubber are placed typically at 55°. Layers are put diagonally on one another. In this type of Tyre, Sidewall and Top area is dependent on each other. Hence, Sidewall flex is transferred to Tread area and the footprint is deformed and this increases the chances of Tyre slip.

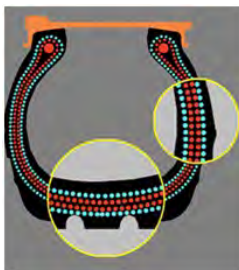


Fig. 1.4.3. Bias tyre internal construction



Fig. 1.4.4. Bias tyre internal construction

Radial Tyre -

Radial Tyre have Steel Cords layers in Tread Area, hence giving sturdiness to Tyre. These are not placed in Sidewall area hence that area remains flexible.



Fig. 1.4.5. Radial tyre internal construction

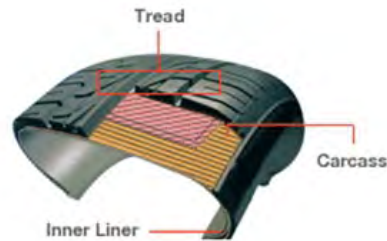


Fig. 1.4.6. Radial tyre internal construction

Demonstrate

- Demonstrate construction of a Bias Tyre.
- Demonstrate construction of a Radial Tyre.

1.4.5: Tyre Sidewall Coding**Ask**

- Ask students have they seen Tyre Sidewall coding.
- Ask students about their understanding of Tyre Sidewall coding.

Say

- Tyres have coding as per their construction on their sidewall.
- It is very important to understand that, in order to use different kind of Tyres.

Explain

Fig. 1.4.7. Tyre sidewall coding

Like in above case there is code – **P205/65 R16 95V**

P – Passenger Cars, i.e. the Tyre should to be used in Passenger cars.

205- Width of Tyre, i.e. the Tyre is having width of 205 mm

65- Aspect Ratio, i.e. Ratio of Height and width of Tyre

R- Radial Construction, i.e. Tyre is a Radial Tryre

16- Rim Diameter, i.e. Diameter of Wheel Rim

95- Load Index, i.e. Load carrying Capacity of Tyre

V- Speed Rating, i.e. Tyre is safe till what speed.

Demonstrate



- Demonstrate Sidewall coding of a Tyre.
- Demonstrate meaning of each code written on sample tyre.

1.4.6: Tyre Load Index

Ask



- Ask students their understanding about Tyre Load Index.

Explain



- Tyre Load Index is the load, which a Tyre can carry safely. It works as per table given below –

Load Index	Kgs	Load Index	Kgs	Load Index	Kgs	Load Index	Kgs
71	345	81	462	91	615	101	825
72	355	82	475	92	630	102	850
73	365	83	487	93	650	103	875
74	375	84	500	94	670	104	900
75	387	85	515	95	690	105	925
76	400	86	530	96	710	106	950
77	412	87	545	97	730	107	975
78	425	88	560	98	750	108	970
79	437	89	580	99	775	109	1000
80	450	90	600	100	800	110	1060

Fig. 1.4.7. Tyre Load Index

Example

- Load index for normal working range for cars is given in above table.
- For example, for 95 Load index, safe load is 690 for a tyre. So overall for 4 tyres load capacity is 2760 kg.

Demonstrate

- Demonstrate the calculation of safe load on all tyres of vehicle for different vehicles.

1.4.7: Tyre Speed Rating

Ask

- Ask students their understanding of Tyre Speed Rating.

Explain

- Same as in the Load Index there is a rating for Safe speed for a Tyre. Each speed rating number codes are related to a specified speed rating of the tyre.

Speed Rating	Kms		Speed Rating	Kms
N	140		U	200
P	150		H	210
Q	160		V	240
R	170		Z	240+
S	180		W	270
T	190		Y	300

Fig. 1.4.8. Tyre Speed Rating

Demonstrate

- Demonstrate the safe speed as per the code in sample tyres available in class for different vehicles.

1.4.8: Slip Angle

Ask

- Ask students about their understanding of Tyre slip angle.

Say



- Slip Angle is the direction the wheel is pointing towards versus the directional travel of the tyre.
- Since Tyre is made of rubber, the elasticity of Rubber bends and stretches under different speeds, braking and while cornering.
- Tyre increases grip level, with increased slip angle.
- After some point the rubber will give up some of its adhesion properties and begin to slide, resulting in a lower grip.



Fig. 1.4.9. Slip angle

Explain



- A narrower and taller tyre will have a larger slip angle peak.
- A wider and lower design will have less slip angle.

1.4.9: Tyre Aspect Ratio

Ask



- Ask students about their understanding of Tyre Aspect Ratio.

Say



- Aspect Ratio is the ratio of Tyre height and Width, which is represented after multiplying with 100.
- Aspect Ratio in example given is 65%, which is shown as 65.

Explain



- Why Normally, lower Aspect Ratio gives better stability.

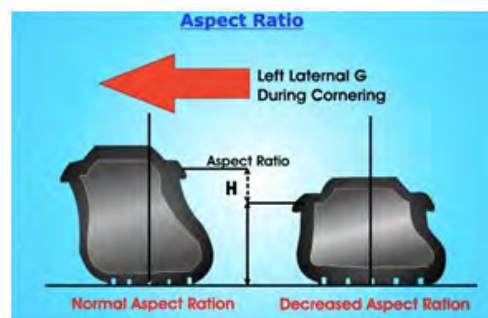


Fig. 1.4.10. Aspect ratio

Activity-1

- Conduct a Tyre Parts identification activity.
- Ask the students to make group of 5 students.
- Students have to identify different Tyre Parts from available samples.
- One group of Students will have 30 minutes for identifying the Part. 10 minutes for presentation.
- Appreciate identification skills of students and tell correct identification, if any sample is wrongly identified.

Activity	Time	Resources
Tyre Part identification	2 Hours	Tyre Parts Samples, Notebook, pen

Activity-2

- Conduct a Tyre sidewall coding interpretation activity.
- Ask the students to make group of 5 students.
- Students have to interpret Tyre Sidewall Coding from Tyre samples.
- One group of Students will have 60 minutes for Tyre Sidewall coding Interpretation. 20 minutes for presentation.
- Appreciate learning skills of students and tell correct interpretation, if any coding is wrongly interpreted.

Activity	Time	Resources
Tyre Sidewall Coding Interpretation	2 Hours	Rubber Samples, Notebook, pen

UNIT 1.5: Process of Tyre Manufacturing

Unit Objectives

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

1. Explain the Tyre manufacturing process.
2. Define constituents of Compound for making Tyre.
3. Describe preparation of various parts of Tyre.
4. Define the Tyre Curing Process.

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster
- Field visit to Tyre Manufacturing Factory
- Different machines used in Tyre manufacturing

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

1.5.1: Tyre Manufacturing

Ask

- Ask students about Tyre manufacturing Process.

Explain

- 1- Compound preparation
- 2- Tyre Parts Preparation

- 3- Tyre Making
- 4- Moulding and Curing
- 5- Final Finish

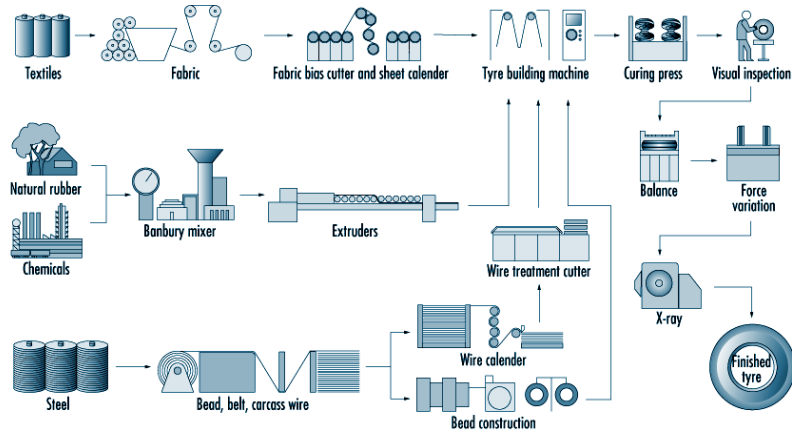


Fig. 1.5.1. Tyre manufacturing process

Demonstrate

- Demonstrate the different stages of Tyre manufacturing process.

1.5.2: Compound Preparation

Elaborate

- Normally a tyre is made of the following contents –
 - 1- SB Rubber
 - 2- Carbon 220
 - 3- Zinc Oxide
 - 4- Stearic Acid
 - 5- Accelerator
 - 6- Oil
- All contents are mixed in different proportions based on the specification of the compound for that Tyre.
- After mixing all the contents, mixture is blended in mixing mill.
- The mill has two rotors, both rotate in opposite direction.
- During this process heat is generated which creates vulcanizing effect on rubber, hence rotors are cooled by water.
- The compound is stored in form of strip and is coated by talc for storing.

Demonstrate



- Demonstrate different types of Rubber contents.
- Demonstrate different parts of mixing machine.
- Demonstrate the process of mixing of all contents for compound preparation.
- Demonstrate the finished compound after process.
- Demonstrate the storage of finished compound with talc and batch details.

1.5.3: Tyre Bead Winding

Explain



- Explain the process of Tyre beading.
- Explain the operation of Tyre beading machine.
- Explain the construction of Tyre Bead.



Fig. 1.5.2. Tyre bead winding process

Demonstrate



- Demonstrate Raw materials for Bead making.
- Demonstrate different parts of bead making machine.
- Demonstrate the process of Bead making.
- Demonstrate the finished Bead after process.
- Demonstrate the storage of finished product with batch details.

1.5.4: Tyre Parts Preparation

Explain



- Explain the process of Tyre Parts preparation.
- Explain the machines used in Tyre Parts preparation.
- Explain the purpose of Extruder Machine.

- Explain the purpose of Calendar Machine.
- Explain different parts like – Tyre Treads, Side Wall and Inner Liner produced by Extruder and Calendar machine.
- Explain how Calendar machine is used for layering of Rubber with Fabric / steel cord for making Piles and belts.



Fig. 1.5.3. Calendar machine



Fig. 1.5.4. Calendar machine - closer look



Fig. 1.5.5. Extruder machine

Demonstrate

- Demonstrate different Parts required for Tyre making.
- Demonstrate Extruder machine and its main parts.
- Demonstrate process of making Tyre parts on different Extruders.
- Demonstrate Calendar machine and its main parts.
- Demonstrate process of making Tyre parts on Calendaring machine.
- Demonstrate the finished Tyre parts after each process.
- Demonstrate the storage of finished parts with batch details.

1.5.5: Tyre Building

Explain

- Explain Tyre building operation
- Explain the process of Tyre parts assembly in Tyre building Drum for making the tyre.
- Explain the terminology of 'Green Tyre'.



Fig. 1.5.6. Tyre building machine

Demonstrate

- Demonstrate arrangement of Parts required, on Tyre Building Machine.
- Demonstrate process of Building Tyre.
- Demonstrate the storage of finished parts with batch details.

1.5.6: Tyre Curing

Explain



- Explain the Curing process
- Explain the process of a Green Tyre placing in a mould
- Explain process of applying specified pressure and heat
- Explain the chemical reaction of all the compounds with each other
- Explain the final shape and characteristics of a Tyre.
- Explain the importance of producing a quality Tyre.
- Explain the basic Role of Pneumatic Tyre Moulding Operator.



Fig. 1.5.7. Tyre curing machine

Demonstrate



- This demonstration can be clubbed with next Chapters demonstration.

Activity-1



- Conduct a Tyre Manufacturing Process flow making activity.
- Ask the students to make group of 5 students.
- Students have to create Process flow for Tyre manufacturing
- One group of Students will have 90 minutes for 'Tyre Manufacturing Process flow making activity'. 30 minutes for presentation. Students have to explain different processes shown in process flow.
- Appreciate efforts made by students and clarify doubts, if any raised, during making of process flow.

Activity	Time	Resources
Tyre manufacturing process flow making	3 Hours	Flipcharts, Markers

UNIT 1.6: Equipment used in Tyre Making

Unit Objectives

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

1. Explain Equipment used in Tyre making
2. Describe various parts of Tyre making equipment

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster
- Field visit to Tyre Manufacturing Factory
- Different machines used in Tyre manufacturing

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

1.6.1: Equipment used in Tyre Manufacturing

Say

- Tyre making is a very special process that requires special machines.
- Following are some of the key machines and equipment used in Tyre manufacturing –
 - Banbury Mixer
 - Bead Assembly Machine
 - Extruder
 - Tyre Building Machine
 - Tyre Curing Machine

1.6.1.1: Banburry Mixer

Elaborate



- Explain the making of Rubber Compound for Tyre, which is made in Banburry Mixer.
- Explain the working of machine and how it is used for mixing Rubber with other ingredients.
- Explain the construction of Banburry mixture parts –
 - 1- Rotors
 - 2- Sides
 - 3- Bed Plate
 - 4- Drop Door
 - 5- Dust Stop
 - 6- Feeding Hopper
 - 7- Ram Group
 - 8- Gear Reducer



Fig. 1.6.1. Banburry mixer

1.6.1.2: Calender

Elaborate



- Explain the machine used for calendering process.
- Explain the process of Rubber compound pressing on to Fabric and Steel cord for making belt or ply.
- Explain the importance of accuracy of machine for performance and life of tyre.
- Explain the construction of Calender machine, which has three heavy-duty rollers.
- Explain the rotation rollers and purpose of that.
- Explain the mechanism of controlling temperature of compound while doing calendering.
- Explain the parts made by this machine, which are Belt, ply and Inner liner.



Fig. 1.6.2. Calender machine

1.6.1.3: Bead Assembly Machine

Elaborate



- Explain the importance of Bead.
- Explain the fitment of Bead on Rim.
- Explain the criticality of machine.
- Explain the function of assembling bead from Steel wire loop, bead filler, chafer, chipper and flipper by the machine.
- Explain the implications of any deviation in dimensions, which can make tyre loose or tight on Rim.



Fig. 1.6.3. Bead winding machine

1.6.1.4: Extruder

Elaborate

- Explain how Extruder is used for making many tyre parts as Tyre Tread, Sidewall and apex.
- Explain the process of Rubber compound getting pushed through extruder for creating a particular design or shape for desired part.
- Explain the construction of machine, which is made of a Barrel and head.



Fig. 1.6.4. Extruder

1.6.1.5: Tyre Building Machine

Elaborate

- Explain the criticality of quality and productivity of Tyre Building machine.
- Explain the assembly process of different Tyre parts.
- Explain why Tyre produced by this machine is called 'Green Tyre'.
- Explain the two Phases of this process.
- Explain the first phase of wrapping of Inner liner, body ply on roller.
- Explain how both beads are set on liner.
- Explain how Bladder, body plies and sidewall sections are also assembled on roller.
- Explain second phase of belt, nylon cap and tread assembly.



Fig. 1.6.5. Tyre building machine

1.6.1.6: Tyre Curing Machine

Elaborate

- Explain the working of Tyre Curing machine which is used for curing the 'Green Tyre'.
- Explain the importance of this machine for Tyre manufacturing.
- Explain how this machine creates shape and tread in tyre.
- Explain the conditions of high temperature and pressure for this operation
- Explain the chemical reaction, which occur in uncured tyre.
- Explain how after Curing only, Tyre attain final stage and becomes available for use..



Fig. 1.6.6. Tyre curing machine

Activity-1

- Conduct 'Equipment working details activity'.
- Ask the students to make group of 5 students.
- Each group of Students have to create Presentation on one machine used for Tyre manufacturing
- One group of Students will have 90 minutes for creating presentation. 30 minutes for presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during Activity.

Activity	Time	Resources
Tyre manufacturing machine details presentation	3 Hours	Flipcharts, Markers

UNIT 1.7: Job Role of a Pneumatic Tyre Moulding Operator

Unit Objectives

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

1. Explain the Job role of a Tyre Moulding Operator

Resources to be Used

- Laptop
- Projector
- White Board
- Marker
- Duster
- Field visit to Tyre Manufacturing Factory

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

1.7.1: Job Role of a Pneumatic Tyre Moulding Operator

Ask

- Ask students about their understanding of responsibilities of a Pneumatic Tyre Moulding Operator.

Say

- Job Role or responsibilities of a Pneumatic Tyre Moulding Operator is very important in any tyre manufacturing company.

Elaborate

- Elaborate the duties of Pneumatic Tyre Moulding Operator, which are –
 - 1- He / She needs to prepare the press.
 - 2- He / She needs to verify that correct mould is loaded on Press.
 - 3- He / She needs to clean the mould by blowing air.
 - 4- He / She needs to set machine Parameter before starting the operation.
 - 5- He / She needs to apply mould release agent.
 - 6- He / She needs to Warm the press.
 - 7- He / She needs to ensure that all the work is being done as per procedure defined and work instructions set for the process.
 - 8- He / She needs to ensure that the process is being carried out in defined cycle time and there is no delay in any activity which may lead to quality issue.
 - 9- He / She needs to ensure that pressure of machine is maintained as per specifications.
 - 10- He / She needs to ensure that all equipment and measuring instruments to be used in process are calibrated as per their due dates.
 - 11- He / She needs to ensure that batch code on tyre is correct.
 - 12- He / She needs to check moulded tyre for any quality issue.
 - 13- He / She needs to ensure housekeeping of machine and nearby area.
 - 14- He / She needs to ensure proper use of PPEs while working in company.
 - 15- He / She needs to ensure that no body part is inside the press before operating the press.
 - 16- He / She needs to ensure that all the procedures related to health and safety are complied as per company regulations.
 - 17- He / She needs to Handle tyre after curing.
 - 18- He / She needs to suggest / advise any improvement in process based on experience and knowledge gained while working on machine.
 - 19- He / She needs to clean the mould by blowing air.
 - 20- He / She needs to analyse the quality issues and resolve the problem to ensure that it does not occur again.
 - 21- He / She needs to escalate the issues which are beyond his / her control to ensure no damage to production and company property.

Activity-1

- Conduct a 'Tyre Moulding Operator activity chart creating Activity'..
- Ask the students to make group of 5 students.
- Students have to create 'Tyre Moulding Operator activity chart'
- One group of Students will have 90 minutes for Creating the chart. Activity chart should have min. 15 activities listed in it. 30 minutes for presentation. Students have to explain different activities listed in chart.
- Appreciate efforts made by students and clarify doubts, if any raised, during making of Activity Chart.

Activity	Time	Resources
Tyre Part identification	2 Hours	Tyre Parts Samples, Notebook, pen

Key Learning Outcomes

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

1. Explain construction of Tyre Moulding Machine
2. Describe the details of Tyre Moulding Machine parts
3. Prepare Machine for Tyre Moulding
4. Demonstrate the cleaning process of Tyre moulding machine
5. Demonstrate the required mould loading in machine
6. Demonstrate the mould cleaning after loading in machine
7. Describe the process of arranging 'Green Tyre' for Moulding
8. Define purpose of Release agent application in mould

UNIT 2.1: Tyre Moulding Machine and its Parts

Unit Objectives

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

1. Explain construction of Tyre Moulding Machine
2. Describe the details of Tyre Moulding Machine parts.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Visit to Tyre Manufacturing Factory
- Tyre Moulding Machine
- Tyre Mould
- Green Tyre
- Release Agent

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

2.1.1: Tyre Moulding Machine (Bag-O-Matic Press)

Say

- Tyre curing is the last operation in Tyre manufacturing.
- The machine used for Tyre curing is called Tyre Moulding Machine.
- This machine gives tyres their final shape and tread pattern.

Elaborate

Worldwide Bag-O-Matic press is the widely used machine for Tyre curing. The bag-o-Matic press has following advantages, due to which it is preferred over other curing machines:

1. It has Lower curing cycles, which make total cycle time less and give higher productivity, and
2. It does not have other operations, like - bagging/debagging. This gives additional saving on time and labour. This makes machine very cost effective.

Latest design Bag-O-Matic presses have feature of automatically loading / unloading. It can cure different size of radial and bias tyres of different sizes in the two cavities of one press, simultaneously.



Fig. 2.1.1. Bag-O-Matic machine

Demonstrate

- Demonstrate Tyre Moulding Machine and its main Parts.

2.1.1.1: Vertical Loader

Explain

- Explain the vertical loading mechanism, which loads the green or uncured tyre into the mould.
- Explain the special design of this mechanism for placing 'Green Tyre' with precise accuracy.
- Explain why Placing of 'Green Tyre is very important for getting high quality and good tyre finish.
- Explain the working procedure of Vertical Loader.
 - 1- First of all 'Green Tyre' is held in the vertical loader through the radial movement of the tyre holding fingers. This operates with the help of air cylinder actuation.
 - 2- In next step the Tyre is lifted by these fingers and placed into the mould cavity, which is already loaded in machine.
 - 3- Then stripping of the cured tyre is done by an independent device. This is essential for eliminating the possibility of alignment issues of loader.
 - 4- There is a mechanism in this machine, which helps loader for giving smooth and precise "swing". This mechanism is called 'Geneva mechanism'. This mechanism works with the help of pneumatic cylinders or hydraulic Cylinders.
 - 5- Control of vertical movement of the loader depends on the weight of tyre. If tyre is small, such as Car Tyre, then Pneumatic cylinder are used for driving the loader. But if Tyres are heavy, such as Truck or Agri tyres, then in that case Chain drive is used.
 - 6- There is an additional mechanism in vertical loader for ensuring concentricity of the 'Green Tyre' with mould. This mechanism is called centering guide.



Fig. 2.1.2. Vertical loader

Demonstrate

- Demonstrate different Types of Loaders and it's Sub Part.
- Demonstrate the detailed working and movement of this part.
- Demonstrate Implication of non-functioning of Loader.

2.1.1.2: Unloader

Explain

- Explain this part of Curing Machine, which is used for unloading tyres from machine after curing cycle is completed.
- Explain both designs of the Unloader.
 - 1- Bucket Type
 - 2- Right Angle Motion Type
- Explain the basis for choosing type of Unloader in any tyre manufacturing plant, which is -
 - Personal choice
 - Size of Tyre to be manufactured
 - Layout of plant
 - Ease of maintaining machine

2.1.1.2.1: Unloader – Bucket Type

Explain

- Explain the working of Bucket type Unloader.
- Explain how the fingers of lower roller table give support to the cured tyre while the bladder is being extracted.
- Explain the next operation, which is to tilt to let the tyre roll - off from the Unloader.

- Explain why bucket type Unloader is suitable for medium weight and size tyres.
- Explain the suitability of bucket type Unloader for unloading car and LCV (Light commercial Truck) tyres from the machine.

2.1.1.2.2: Unloader – Right Angle Motion Type

Explain

- Explain how this type of Unloader is designed to give steady vertical movement for removing the cured tyre from the upper bladder clamp.
- Explain the stripping operation, which gets completed by two Water hydraulic cylinders. Also explain that operation is performed with help of a cam - plate.
- Explain the benefit of this mechanism, which is to have minimal probability of having interference between the tyre bead and upper bladder clamp ring while doing unloading.



Fig. 2.1.3. Unloader

Demonstrate

- Demonstrate different Types of Unloader and its Sub Part.
- Demonstrate the detailed working and movement of this part.
- Demonstrate Implication of non-functioning of Unloader.

2.1.1.3: Control Mechanism for Bladder

Explain

- Explain the control mechanism for bladder.
- Explain its usefulness for adjusting stacking height in line with the position the bladder for curing pre-formed (radial) tyres and undercut drum built tyres.
- Explain the other job of this mechanism, which is to locate top clamp ring with upper tyre bead.
- Explain Its capability to ensure uniformity in tyre, which provides positive bladder centering.



Fig. 2.1.4. Bladder

Demonstrate



- Demonstrate Bladder Mechanism in Tyre Moulding machine.
- Demonstrate the detailed working and movement of this part.
- Demonstrate Implication of non-functioning of Bladder.

2.1.1.4: Control Panel

Explain



- Explain that this is also a critical part of machine.
- Explain about Control Panel, which is an interface of machine.
- Explain how it is used for setting all the critical parameters, like
 - process time, pressure of steam, Temperature and other parameter.



Fig. 2.1.5. Control panel

Demonstrate



- Demonstrate Control Panel in Tyre Moulding machine.
- Demonstrate Parameter and Settings available in Control Panel.
- Demonstrate use and importance of each parameter for Tyre Moulding.
- Demonstrate implications of non-working of each parameter in Tyre Moulding Process.

2.1.1.5: Mould Heater

Explain



- Explain the requirement of Mould Heaters, which is for heating of mould for Tyre curing.
- Explain the types of Mould heater –
 - 1- Platen Heater
 - 2- Dome Heater
- Explain how based on machine or mould size heater type is decided in machine.

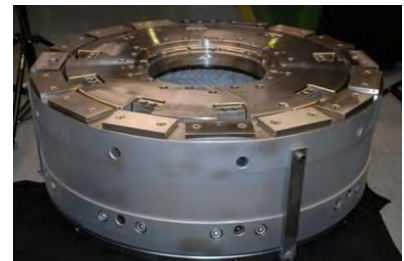


Fig. 2.1.6. Mould heater

Demonstrate



- Demonstrate Moulding Heater and its fitment in machine.
- Demonstrate Parameter and Settings for Mould Heater.
- Demonstrate working of Mould Heater.
- Demonstrate implications of non-working of Mould Heater in Tyre Moulding Process.

2.1.1.6: Tyre Mould

Explain



- Explain the mould concept, which is used for 'Green tyre' curing.
- Explain the construction of tread pattern in its internal wall, and how it is transferred in tyre once Tyre curing is complete.
- Explain the mechanism for Air filling in Green Tyre, which is required to keep it in positive contact during curing.
- Also explain the mechanism of heating for Tyre curing .

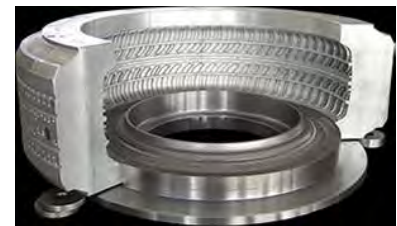


Fig. 2.1.7. Tyre Mould

Demonstrate



- Demonstrate different types of Tyre Moulds.
- Demonstrate Mould fitment in Tyre Moulding Machine.
- Demonstrate construction of Tyre Mould.
- Demonstrate implications of different defects of Tyre Mould on Tyre Moulding.

Activity-1



- Conduct a Tyre Moulding machine demonstration Activity.
- Ask the students to make group of 5 students.
- Students have to do 'Tyre Moulding machine demonstration'
- One group of Students will have 90 minutes for Creating the presentation of Tyre Moulding Machine Processes. 60 minutes for demonstration.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Moulding Machine Demonstration	3.5 Hours	Tyre Moulding Machine, Flip Charts, Marker

UNIT 2.2: Machine Preparation and Tyre Moulding

Unit Objectives

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

1. Prepare Machine for Tyre Moulding.
2. Demonstrate the cleaning process of Tyre moulding machine.
3. Demonstrate the required mould loading in machine.
4. Demonstrate the mould cleaning after loading in machine.
5. Describe the process of arranging 'Green Tyre' for Moulding.
6. Define purpose of Release agent application in mould.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flip charts
- Participant Handbook / Copies of Handout
- Visit to Tyre Manufacturing Factory
- Tyre Moulding Machine
- Tyre Mould
- Green Tyre
- Release Agent

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

Ask

- Ask students why it is important to prepare the Tyre moulding machine before Tyre moulding.
- Ask students, as per them what should be the steps of Moulding Machine Preparation.

2.2.1: Steps for Tyre Moulding Machine Preparation

Say

- Tyre moulding is a very critical and key step in tyre manufacturing.
- Due care should be taken in machine preparation before starting the tyre moulding.
- We will learn steps for preparing the Tyre moulding machine.

2.2.1.1: Tyre Moulding Machine Cleaning

Explain

- Explain why before beginning the operation for the day, operator should do cleaning of machine and his / her workplace.
- Explain the importance of ensuring that his / her workplace is thoroughly cleaned.
- Explain the process of cleaning and removing any unwanted mould / material / tools / equipment in the workplace.
- Explain that If anything such as mould / material / tools / equipment are available, which is not needed for the current process, it should be properly kept at its place before starting the operation.
- Explain that after each operation the machine should be cleaned for dust, dirt and residues.
- Explain the process of cleaning, which should be done with piece of cloth.
- Explain the requirement and process of using a suitable solvent for cleaning the machine.
- Explain the importance of a clean workplace and benefits, which includes- accident possibility reduction and mental peace to operator, which also helps in increasing the output.

Demonstrate

- Demonstrate the difference in cleaned and not cleaned machine.
- Demonstrate different aspect of cleaning, like – removing residual of previous operation, removing dust from machine frame, cleaning Dust from Control Panel, removing not required articles from workplace etc.
- Demonstrate use of suitable solvents for cleaning of Tyre Moulding machine.
- Demonstrate use of different cleaning aids, like – cleaning cloth, brush, Air gun etc.

2.2.1.2: Loading Correct Mould in Machine

Explain

Next step is to load correct mould in the machine. Before loading the mould following points should be taken care of–

- 1- Ensure that job sheet is taken from correct source.
- 2- Ensure the job sheet is latest and valid.

- 3- Ensure that correct mould is identified as per job sheet requirement.
- 4- Ensure that Mould working condition is ok as per history card of mould.
- 5- Check physical condition of mould for any obvious damage to mould.
- 6- Ensure that appropriate PPEs are worn before lifting the mould.
- 7- Ensure appropriate mould lifting equipment is used, which can safely lift the mould.
- 8- Ensure previous mould is removed from machine, before bringing new mould for loading in machine.
- 9- Ensure mould is correctly placed in machine before taking off the lifting equipment.
- 10- Ensure mould is properly fastened before moving to next step.
- 11- Ensure all the connections of mould are properly made with machine.



Fig. 2.2.1. Mould loading in tyre moulding machine

2.2.1.2.1: Mould Changing Process in Tyre Moulding Machine

Ask



- Ask students why Mould changing process is critical.
- Ask students what could be the Safety related issues in Mould changing Process.

Say



- Changing mould is a very crucial and important process.
- Any carelessness in this process can cause huge monetary and production loss to company.
- Mould development process is long and costly, hence in situation of mould damage during mould changing may cause supply delay to customer, which may attract penalty and loss of

2.2.1.2.1.1: Steps for Mould Changing in Tyre Moulding Machine

Steps



Follow below steps for changing mould from machine –

- 1- Check quality of last piece produced from the mould. Make note in mould history sheet, if any issue is found. It will help in correcting the mould before taking it in use next time.
- 2- Switch off the machine.

- 3- Unfasten the upper part of Mould.
- 4- Unfasten the lower part of Mould.
- 5- Lift mould with lifting device. Ensure that lifting device load lifting capacity is more than mould weight.
- 6- Keep mould on trolley.
- 7- Transfer mould to mould-storage area.
- 8- Locate mould in mould-storage area, which is to be loaded next in Tyre moulding machine.
- 9- Lift mould and keep it on mould transfer trolley.
- 10- Again lift mould from trolley with the help of lifting device and keep it in machine.
- 11- Align mould properly with upper cavity holder.
- 12- Fasten the mould properly with machine.
- 13- Do free trial run for 3-4 time, to ensure correct alignment and fastening.



Fig. 2.2.2. Clamp for tyre mould movement



Fig. 2.2.3. Crane arrangement for mould carrying clamp



Fig. 2.2.4. Carrying mould with the help of Crane

Demonstrate

- Demonstrate how to check mould identification on Mould and job sheet.
- Demonstrate how to check Job sheet validity.
- Demonstrate how to check mould quality status and mould history card.
- Demonstrate use of PPEs during mould loading and unloading in tyre moulding machine.
- Demonstrate unfastening of old mould from Tyre moulding machine.
- Demonstrate lifting of Mould with help of mould clamp and Crane.
- Demonstrate movement of mould with the help of Crane.
- Demonstrate moving and fitment of new mould in Tyre moulding machine.
- Demonstrate fastening of new mould in tyre moulding machine.

2.2.1.3: Mould Cleaning After Loading in Machine

Elaborate



- It is very important to clean the mould cavities from inside before starting the process. Any foreign particle left in cavities, may get moulded with tyre and create quality issues later on.
- After loading the mould in machine, it should be opened and properly cleaned with the help of a piece of cloth and pressurized air.



Fig. 2.2.5. Mould cleaning

Demonstrate



- Demonstrate how to clean mould with solvent and cloth.
- Demonstrate how to clean air vent of Mould.
- Demonstrate how to clean mating edges of Mould cavities.
- Demonstrate how to clean fitment points of Mould.
- Demonstrate how to clean Tyre Treads of Mould.
- Demonstrate how to clean Sidewall coding of Mould.

2.2.1.4: Arranging Green Tyre for Tyre Moulding

Elaborate



- Before starting the machine, it should be ensured that desired quantity of 'Green Tyre' is available. By doing this, you will save precious time which you might waste in searching for 'Green Tyre' after everything is ready and cycle is about to start.
- It should be ensured that the available batch of 'Green Tyre' is approved from Process quality for next operation and is as per job sheet.
- The 'Green Tyre' should be checked for painting on inner and outer surface.
- It should also be ensured that lot available for moulding is approved from quality department for moulding.



Fig. 2.2.6. Stock of 'green tyre'

Demonstrate



- Demonstrate how to check correct batch code of 'Green Tyre' with Job Sheet.
- Demonstrate how to check Quality status of 'Green Tyres'.
- Demonstrate how to move 'Green Tyre' to Tyre Moulding Machine.
- Demonstrate how to check quantity required for the production from job sheet.

2.2.1.5: Setup of Program in Control Panel

Elaborate

- Explain the importance of this step.
- Explain how to choose the program as per given job sheet in control panel.
- Explain that it should be ensured that chosen program has all the critical parameters of steam pressure, press timer and cure cycle steps as per specification sheet.



Fig. 2.2.7. Parameter setting

Demonstrate

- Demonstrate different parameters and their setting options in Control Panel.
- Demonstrate how to create program in Automatic machines.
- Demonstrate how to make changes in parameters.
- Demonstrate how to do troubleshooting in Tyre Moulding Machine by control panel.

2.2.1.6: Application of Mould Release Agent

Say

- Spraying mould release agent is very critical.
- It should be done with specified mould release agent.
- The process of spraying and quality of release agent should be as per procedure defined for the tyre to be moulded.
- Release agent should be sprayed in both the top and bottom cavities.
- Mould release agents are broadly divided into following two categories –
 - 1- Aqueous based silicon and related materials
 - 2- Solvent based PTFE and related materials.

Elaborate

- Aqueous release agent requires frequent applications, while on the other hand solvent based or non-aqueous based release agent required to be applied only once in between several cycles. You should choose the appropriate release agent depending upon the type of Tyre material and as recommended in the process work instruction.
- Spraying of release agent is automatic in advanced Tyre moulding machines.
- Any deviation from procedure for quantity of release agent may result in problem of tyre sticking in mould. It may also lead to tyre rejection.



Fig. 2.2.8. Spraying mould release agent

Demonstrate



- Demonstrate how to spray releasing agent in manual Tyre Moulding Machine.
- Demonstrate effects of poor Release agent spray.
- Demonstrate defects related to Release Agent Spray.

2.2.1.7: Mould Pre-heating

Explain



- Explain the process of spraying release agent.
- Explain the process of mould closing for a specified time period after spraying the release agent, as mentioned in work instruction.
- Explain that after doing above process only you can start the process of mould heating.
- Explain that it is very important that the mould cavities should remain closed and the mould should be preheated to specified temperature.
- Explain that It should be ensured that there is no delay in moulding operation after release agent application and mould pre-heating

Demonstrate



- Demonstrate how to do mould preheating.
- Demonstrate how to set mould preheating parameter.
- Demonstrate effects of poor Pre-heating.
- Demonstrate defects related to poor Pre-heating.

Activity-1



- Conduct a Tyre Moulding machine Cleaning Activity.
- Ask the students to make group of 5 students.
- Students have to give presentation on Machine cleaning and they have to clean Tyre Moulding machine as per presentation given.
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and machine cleaning.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Moulding Machine Cleaning	2 Hours	Tyre Moulding Machine, Flip Charts, Marker

Activity-2

- Conduct a Tyre Mould changing Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on steps for Mould changing.
- One group of Students will have 30 minutes for Creating the presentation. 15 minutes for giving presentation and 60 minutes for Mould Changing.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Mould changing activity	2 Hours	Tyre Moulding Machine, Mould, Mould carrying Clamp, Crane, Tools for Mould fastening and un-fastening, Flip Charts, Marker

Activity-3

- Conduct a Tyre Mould cleaning Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on Mould cleaning.
- One group of Students will have 20 minutes for Creating the presentation. 10 minutes for giving presentation and 20 minutes for Mould Cleaning.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Mould Cleaning activity	4 Hours	Tyre Moulding Machine, Mould, Air Pressure Gun, Emery paper, File, Air Vent cleaning tool, Flip Charts, Marker

Activity-4

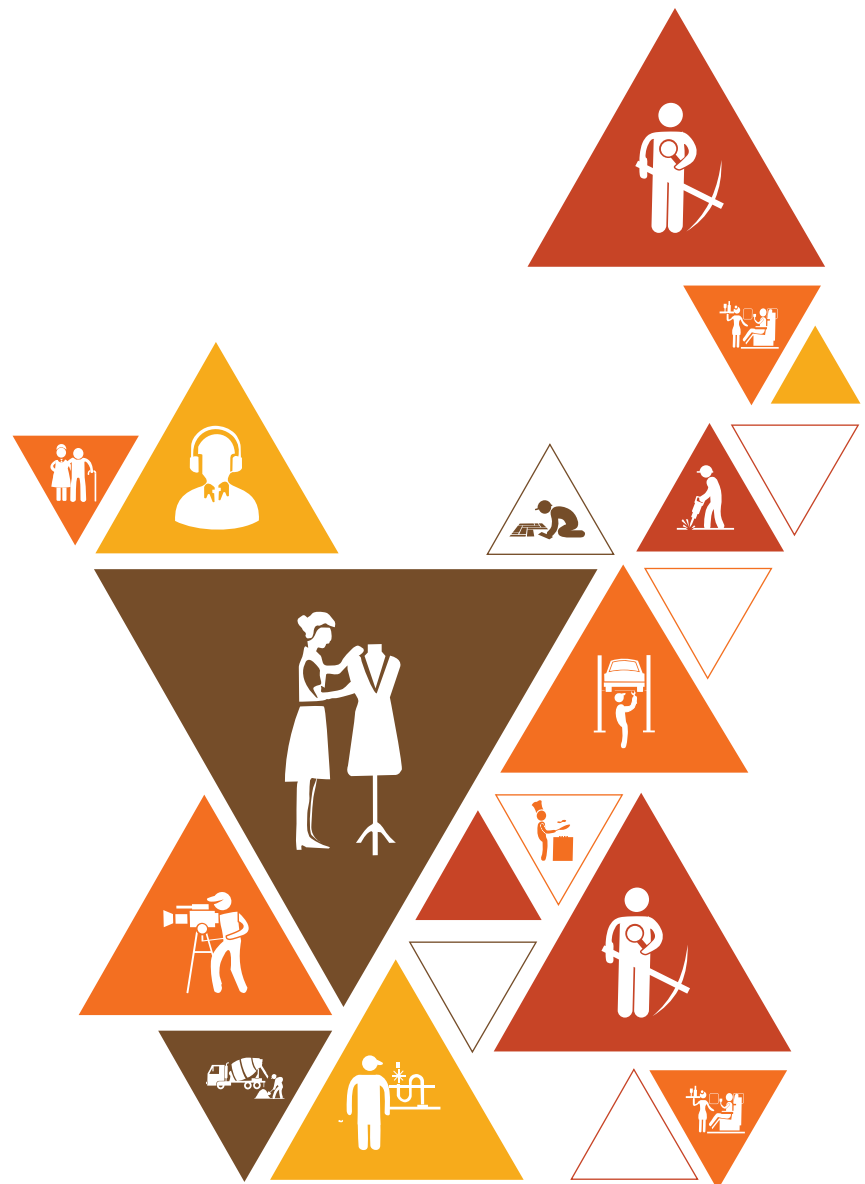
- Conduct a Tyre Moulding Machine setup Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on Tyre Moulding Machine Setup.
- One group of Students will have 30 minutes for Creating the presentation. 20 minutes for giving presentation and 60 minutes for Machine Setup.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Moulding Machine Setup activity	8 Hours	Tyre Moulding Machine, Machine Parameter setup sheet, Flip Charts, Marker

Activity-5

- Conduct a Mould Release Agent Spraying Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on Mould Release Agent Spraying Activity.
- One group of Students will have 30 minutes for Creating the presentation. 20 minutes for giving presentation and 15 minutes for Mould Release Agent Spraying Activity.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Mould Release Agent Spraying Activity	4 Hours	Tyre Moulding Machine, Mould Release Agent, Release Agent Spray Gun, Flip Charts, Marker





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

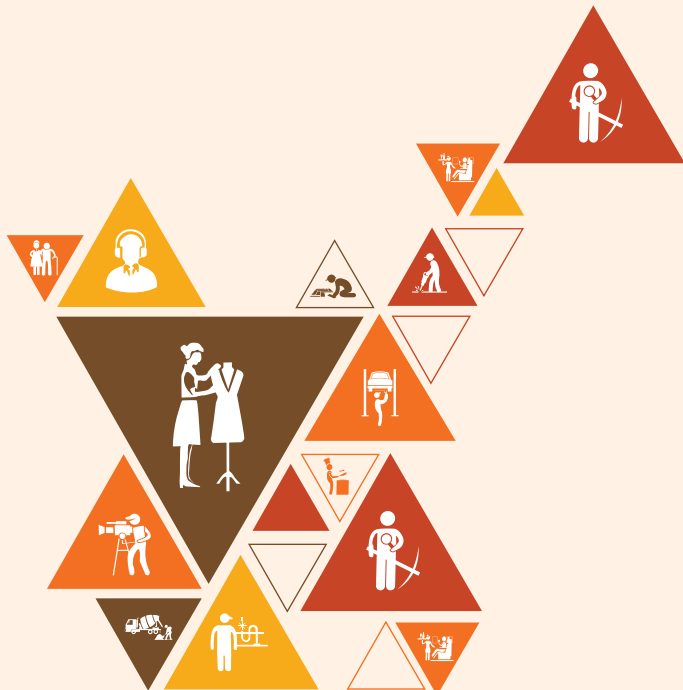
Transforming the skill landscape



3. Performing Pneumatic Tyre Moulding Operation

Unit 3.1 – Startup checks before Tyre Moulding

Unit 3.2 – Operating Instructions for Tyre Moulding



RSC/Q1102

Key Learning Outcomes

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

1. Demonstrate Machine checkup points before Tyre Moulding.
2. Demonstrate Control Panel checkup points before Tyre Moulding.
3. Demonstrate Mould checkup points before Tyre Moulding.
4. Discuss Importance of Mould Cleaning & Maintenance.
5. Describe General operating instructions before Tyre moulding.
6. Explain 'Green tyre' Inspection.
7. Describe preparation points before Tyre Moulding.
8. Explain steps involved in changing mould in Tyre Moulding Machine.
9. Demonstrate the steps for performing Tyre Moulding.
10. Describe the Safety Precautions to be taken during Tyre Moulding.
11. Discuss Do's and Don'ts for Tyre Moulding Operations.
12. Define Responsibilities of Tyre Moulding Operator.

UNIT 3.1: Startup Checks before Tyre Moulding

Unit Objectives

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

1. Demonstrate Machine checkup points before Tyre Moulding.
2. Demonstrate Control Panel checkup points before Tyre Moulding .
3. Demonstrate Mould checkup points before Tyre Moulding.
4. Discuss Importance of Mould Cleaning & Maintenance.
5. Describe General operating instructions before Tyre moulding.
6. Explain 'Green tyre' Inspection.
7. Describe preparation points before Tyre Moulding.
8. Explain steps involved in changing mould in Tyre Moulding Machine.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Tyre Moulding Machine
- Green Tyre
- Tyre Mould Clamp and Crane

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

Ask

- Ask students why it is important to check the Tyre moulding machine before moulding operation.
- Ask students, as per them what should be the Startup Checks.

3.1.1: Startup Checks before Tyre Moulding

Elaborate



- Before starting the operation of Tyre moulding, you should check all the aspects for trouble free moulding.
- Start up check process is very important from safety point of view, since it avoids any safety lapses.
- Start up check process is very important from quality point of view, since it takes care of any machine setting issue, before you start the process.
- Start up check process is very important from productivity point of view, since it ensures all the things are correct before you start the process, hence you need not stop the operation in between.

3.1.1.1: Machine Checkup

Explain



- 1- Before starting of the moulding process, the moulding operator should him/herself check the operation of Tyre Moulding machine parts. He / she should ensure that all the parts, like - Loader, Unloader, Bladder, heaters are physically in ok condition.
- 2- Ensure machine is cleaned before running production cycle. If not, then it should be cleaned with clean cloth and compressed air and ensure that there is no dirt and dust on machine.
- 3- Check power is coming in control panel and machine is on.
- 4- Check working of Loader by running it for one cycle.
- 5- Open and close mould for one cycle and see that top and bottom parts are meeting perfectly.
- 6- Check for temperature status at control panel.
- 7- Check Air Pressure against specification.
- 8- Check Steam pressure against Specification.
- 9- Check that all meters and equipment on machine are calibrated and nothing is overdue.

Demonstrate



- Demonstrate how to do machine checkup as per above-mentioned points.

3.1.1.2: Control Panel Checkup

Explain



- 1- Ensure that you have full knowledge of control panel
- 2- Ensure that correct program, for moulding the Tyre, is selected from machine memory (if machine is automatic), or all parameters are set as per machine parameter sheet.
- 3- Ensure that all functions in control panel are running.

Demonstrate



- Demonstrate how to do control panel checkup as per above-mentioned points.

3.1.1.3: Mould Checkup

Explain



- 1- Ensure that correct mould as per job sheet is loaded on the machine.
- 2- Ensure that mould maintenance date is not overdue.
- 3- Ensure that mould is properly set on its place in machine.
- 4- Ensure that mould is properly fastened on machine.
- 5- Ensure that mould is properly cleaned from inside.
- 6- Ensure that mould is properly polished for getting a good finish and tread pattern on tyre.
- 7- Ensure that release agent is applied in the mould.
- 8- Ensure that tyre spec plate is placed at designated place.

Demonstrate



- Demonstrate how to do mould checkup as per above-mentioned points.

3.1.1.3.1: Importance of Mould Cleaning & Maintenance

Elaborate



Mould cleaning and maintenance is very important activity and has following outcomes –

1. Flow of Rubber in molten stage would be smooth.
2. Tyre ejection from mould would be easy.
3. No problem of tyre sticking in mould.
4. Finish of tyre will be good.
5. Tread Pattern would be clean.



Fig. 3.1.1. Mould cleaning

Demonstrate



- Demonstrate how to do mould cleaning as per above-mentioned points.

3.1.1.4: General Instructions for Tyre Moulding

Say



1. Ensure that cleaning and housekeeping at work is proper. There is no material lying in the area which is not needed during tyre moulding process.
2. Ensure that floor is also cleaned for any chemical or oil spillage. So that there is no threat of slip / fall hazard.
3. Ensure that operator has all the required tools for tyre moulding.
4. Ensure that person has worn proper Personal protective equipment, like – Gloves, Safety Goggle, Safety shoes, mask and Earmuff.
5. Ensure that at no time, operator's hand is inside the mould, while machine is in operation.
6. Read and understand all safety related instruction before operating the machine.

Demonstrate



- Demonstrate how to do housekeeping of workplace.
- Demonstrate how to clean oil / chemical spillage at workplace.
- Demonstrate arrangement of tools during Tyre moulding.
- Demonstrate use of PPEs required during Tyre Moulding.
- Demonstrate how to safely operate Tyre Moulding machine.

3.1.1.5: Green Tyre Inspection

Say



Although 'Green Tyre' comes to this stage after proper inspection, still before loading the tyre to machine, it should be checked for following points -

1. Tyre should be checked visually for any cut mark or any physical damages during movement.
2. Batch code of tyre should be checked against job sheet.
3. Tyre Ply rating and size should be checked against job sheet.
4. Tyre lot size should be checked for required quantity as per job sheet.



Fig. 3.1.2. Green tyre inspection

Demonstrate



- Demonstrate how to do 'Green Tyre' Inspection.
- Demonstrate how to report any abnormality in 'Green Tyre' before proceeding for Tyre Moulding
- Demonstrate how to safely operate Tyre Moulding machine.

3.1.1.6: Manpower Arrangement

Say

- 1- Ensure that required manpower is available for Tyre moulding.
- 2- Ensure that the given manpower is trained for required operation.

Demonstrate

- Demonstrate how to assess manpower requirement.
- Demonstrate how to ask for Manpower.
- Demonstrate how to report non-availability of manpower or issues related to manpower to Supervisor.
- Demonstrate how to safely operate Tyre Moulding machine.

3.1.2: Preparation before starting Tyre Moulding

Say

There are some preparation which should be done before starting Tyre moulding –

- 1- Before starting the machine, the operator should be in full readiness and should not have mental tensions of any kind.
- 2- Operator must have full knowledge of all the tools that are needed for operating the machine, and the same should be kept accessible in a toolbox.

Activity-1

- Conduct a Tyre Moulding Machine Startup check Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on Tyre Moulding Machine Startup check Activity
- One group of Students will have 30 minutes for Creating the presentation. 20 minutes for giving presentation and 15 minutes for Tyre Moulding Machine Startup check Activity.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Moulding Machine Startup check Activity	5 Hours	Tyre Moulding Machine, Mould Release

UNIT 3.2: Operating Instruction for Tyre Moulding

Unit Objectives

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

1. Demonstrate the steps for performing Tyre Moulding.
2. Describe the Safety Precautions to be taken during Tyre Moulding.
3. Discuss Do's and Don'ts for Tyre Moulding Operations.
4. Define Responsibilities of Tyre Moulding Operator.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Tyre Moulding Machine
- Green Tyre
- Tyre Mould Clamp and Crane

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

3.2.1: Steps for Tyre Moulding

Ask

- Ask students the steps of Tyre moulding.
- Ask students, as per them what should be the Startup Checks.

Say

- Now, when all things are set, you are ready for Tyre moulding.

Steps: Tyre Moulding

- 1- Open the mould and take upper part of mould to upper side as per specification sheet.
- 2- Keep 'Green Tyre' from batch available, to pickup place.
- 3- Press the cycle 'ON' button on control panel.
- 4- Loader shall place the tyre in mould cavity.
- 5- Once the tyre is placed correctly in mould, press curing cycle 'ON' switch.
- 6- Press will close the mould, check if both the parts of the mould are matching properly.
- 7- Just before mould closing, check whether curing bag is getting inflated, so that Green tyre has positive contact with mould wall.
- 8- Once curing cycle has started, check whether all machine parameters, like – temperature, air pressure, steam pressure is as per specifications.
- 9- Internal processes – Once mould is closed many processes will take place inside the mould. First curing bag will be filled with Air and will push 'Green Tyre' to mould wall and the tyre surface will cover all mould surface from inside. Then with mould heat 'Green Tyre' surface will melt and get the shape of tread pattern made in mould cavity. Extra Rubber will come out from vent holes along with hot gases. Temperature of tyre goes to more than 280 degree Celsius.

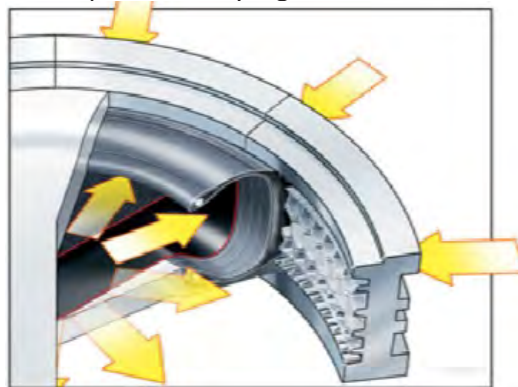


Fig. 3.2.1. Internal process of tyre curing

- 10- The flashes coming out from joints should be under specification, since more flashes means mould joint is not correct and you are losing rubber from tyre to flashes, which will be removed in finishing section.
- 11- Curing time depends on the tyre specification.
- 12- After curing cycle is complete, air supply to machine will be stopped.
- 13- Now mould can be opened by pressing mould open switch.
- 14- Cured Tyre can be taken out by Unloader.
- 15- Once tyre is cooled down, then tyre should be inspected.
- 16- Inspected tyre should be sent to Finishing Section.

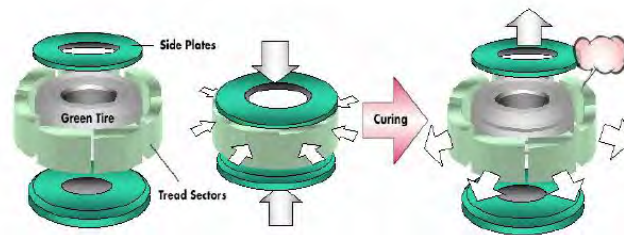


Fig. 3.2.2. Tyre curing process

Demonstrate



- Demonstrate complete cycle of Tyre moulding.
- Demonstrate important aspects related to different activities of Tyre moulding.
- Demonstrate implications of non-adherence to work instructions for Tyre moulding.

3.2.2: Safety Precautions during Tyre Moulding

Ask



- Ask students what should be the Safety precautions during Tyre Moulding.
- Ask students what should be the PPEs to be used during Tyre Moulding.

Say



There are so many hazards in Tyre moulding process; hence it is necessary to take all safety precautions. Following are some of the safety precautions, which you must take while doing Tyre moulding –

- 1- Always wear safety shoes.
- 2- Always wear Safety gloves appropriate to work with hot surfaces of more than 280 degrees.
- 3- Do not put hands in mould while press is on move.
- 4- Do not come in contact with hot surfaces with bare hands or skin.
- 5- Do not come near to the loader and Unloader while they are moving tyre.
- 6- Take appropriate safety measures while changing moulds. Use suitable lifting devices for moving moulds.

Demonstrate



- Demonstrate Safety instructions to be followed during Tyre moulding.
- Demonstrate use of different PPEs to be used in Tyre moulding.
- Demonstrate implications of non-adherence to safety instructions for Tyre moulding.

3.2.3: Do's and Don'ts for Tyre Moulding operation

Say 

Do's	Outcome
Wear proper fitting cloths	No threat of sticking of the loose cloths in moving machine parts, which could have caused accident
Wear Safety Goggle	No threat of entering of any foreign particle in eye
Wear Safety shoes	No threat of any injury to foot due to any heavy object falling off over the foot
Wear Safety Gloves	No threat of any cut due to handling of sharp objects or burn due to handling hot objects
Wear Earmuffs	No hearing damage
Be alert during moulding operation	No accident probability due to carelessness
Get trained in all safety / fire fighting equipment	Can use them as and when needed
Get information about location of fire fighting / safety equipment	Can retrieve them instantly in case of any need
Be informed about emergency stop of machine	Can stop machine immediately, in case of emergency
Don'ts	Outcome
Do not talk to anybody while operating machine	Accident can be avoided due to carelessness
Do not let any unauthorised person come in workplace	Unauthorised person may become reason for accident due to his/her unawareness
Do not run the machine if there is any leakage of steam or air	May cause accident
Do not run the machine without doing startup checks	Any unchecked issue in machine may become reason of accident
Do not run machine when intoxicated	You can loose control over machine and accident may happen

3.2.4: Responsibilities of Tyre Moulding Operator

Ask 

- Ask students what are the key responsibilities of Tyre Moulding Operator.

Elaborate

Following are the responsibilities of a Tyre Moulding operator –

- 1- Do not leave machine unattended while operation is in under way.
- 2- Do not let any unauthorised person run the machine.
- 3- Always run machine with all safety measures.
- 4- Never put hand or any other body part between mould cavities while press is running.
- 5- Do not allow any co-worker to play near the machine.
- 6- Do not lean on control panel.
- 7- Immediately stop the machine if any problem is noticed in the machine.
- 8- Always inform supervisor without any delay for any abnormality or expected production loss.
- 9- Always in inform supervisor without any delay for any expected quality problem.
- 10- Never bypass any safety control in machine.
- 11- Always check mould specification with Job sheet before starting the operation.
- 12- Always check 'Green Tyre' specification before putting it in to machine.
- 13- Always check inspection status of 'Green Tyre'. Only ok tyre to be used for moulding.
- 14- Always ensure correct sidewall coding in mould being used.
- 15- Always do startup check on machine before starting the operation.
- 16- Never allow any helper or any other person to sleep or take rest in workplace near the machine.
- 17- Immediately inform supervisor in case of any emergency.
- 18- Always fill production details in job sheet or any other documentation accurately.

Demonstrate

- Demonstrate all the responsibilities of Tyre moulding operator while showing Tyre moulding.
- Demonstrate implication of non-adherence to the responsibilities for Tyre moulding operator.

Activity-1

- Conduct a Perform Tyre Moulding Activity.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on Perform Tyre Moulding Activity
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 60 minutes to Perform Tyre Moulding Activity.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Perform Tyre Moulding Activity	8 Hours	Tyre Moulding Machine, Mould Release Agent, Release Agent Spray Gun, Green tyre, Flip Charts, Marker

Activity-2

- Conduct a 'Safety Precautions during Tyre Moulding Activity'.
- Ask the students to make group of 5 students.

- Students have to make and give presentation on 'Safety Precautions during Tyre Moulding Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 30 minutes to perform 'Safety Precautions during Tyre Moulding Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Safety Precautions during Tyre Moulding Activity'	4 Hours	Tyre Moulding Machine, Mould Release Agent, Release Agent Spray Gun, Green tyre, Flip Charts, Marker



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

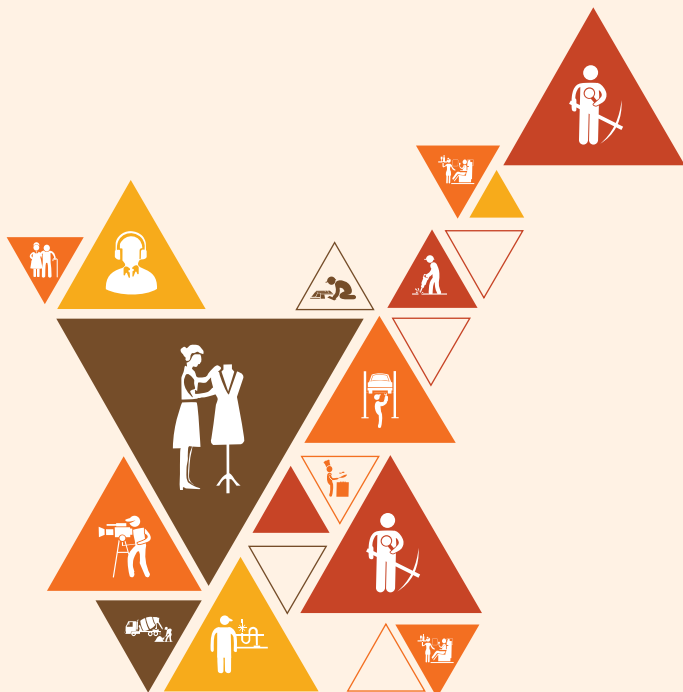
Transforming the skill landscape



4. Perform Post Pneumatic Tyre Moulding Operation Activities

Unit 4.1 – Post Tyre Moulding Activities

Unit 4.2 – Disposal of Rejected Tyres



RSC/Q1103

Key Learning Outcomes

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

1. Explain Post-Tyre Moulding activities
2. Describe the Quality issues in Tyre Moulding operations.
3. Define the Countermeasures to be taken on quality issues related to Tyre Moulding
4. Explain challenges in Tyre disposal
5. Describe Tyre recycling.
6. Describe the uses of recycled Tyre.

UNIT 4.1: Post Tyre Moulding Activities

Unit Objectives

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

1. Explain Post-Tyre Moulding activities
2. Describe the Quality issues in Tyre Moulding operations.
3. Define the Countermeasures to be taken on quality issues related to Tyre Moulding.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Cured Tyre
- Tyre Finishing Tools – Flash removing tool, Scissor, etc.
- Tyre / Tyres with different moulding defects.

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

Field Visit

- Take Students for a field visit to the Tyre manufacturing Company.

4.1.1: Post-Moulding operation activities

Ask

- Ask students what could be the Post-Moulding activities.
- Ask students why Post-Moulding activities are important.

Say

Following activities to be conducted after moulding operation is completed –

- 1- Once moulding cycle is completed the pressure will ease out.
- 2- After pressure release, the mould will be opened and upper cavity will go upwards.
- 3- Now the cured tyre will be taken out of the mold by tyre release mechanism.
- 4- Unloader will take the tyre out from the mould. If machine is not fully automatic, then tyre has to be taken out manually. Ensure proper safety precautions are taken before touching hot tyre.
- 5- Keep the tyre on PCI unit; Cool it down by applying compressed air for specified period and pressure as per work instructions.
- 6- Mark the traceability marking on the tyre before taking any other action on it.
- 7- Inspect Tyre for visual defects, like – blowholes, cut, overflow etc.
- 8- Do dimensional check with help of vernier caliper and other equipment as per inspection standard.
- 9- Remove air vent and flashes from tyre.
- 10- Ensure all waste generated in finishing activity is properly disposed in place designated for that waste.
- 11- Send Tyre for further testing and inspection.
- 12- Send sample tyre for lab testing too, as per the procedure decided by the company.
- 13- The non-conforming or quality suspected tyre must be stored in a separate place designated for them. Put tag on them for rejection reasons.
- 14- Document all production and other information, as per procedure, on prescribed formats.

Demonstrate

- Demonstrate process of Tyre finishing of Cured Tyre.
- Demonstrate process of Cured Tyre Inspection.
- Demonstrate implications of doing wrong Post Moulding activities.

4.1.2: Actions on Quality Issues

Elaborate

Following are some of the quality issues, which may get generated during tyre moulding process –

- 1- **Excess flashes** – In this quality issue, flashes are generated more in length and thickness. It happens due to uneven edges of moulds and when the Mould closing is not proper. Due to more space available between both cavities, pressurized rubber comes out of that space.
Countermeasure – Faces of mould cavities to be corrected and ensure proper matching of mould edges.

- 2- **Uneven Tyre Thickness** – In this quality issue, Thickness of tyre remain uneven, i.e. it may be more or less on one side of tyre. It happens due to wrong placement of the curing bladder.
Countermeasure – Position of curing bladder to be corrected.
- 3- **Trapped Air Defects** – In this quality defect, uneven rubber surface is observed. It happens due to improper air venting through vent holes.
Countermeasure – This can be avoided by cleaning of vent holes and by using better quality release agent.
- 4- **Poor Sidewall lettering** – In this quality defect, sidewall lettering is not clear. It happens due to poor flow of rubber on outer wall.
Countermeasure – This can be avoided by proper pre-heating of mould, maintaining the correct mould temperature and correct use of release agent.
- 5- **Poor Tread blocks** – In this quality defect, tread block is not formed properly. It happens due to poor flow of rubber on outer wall.
Countermeasure – This can be avoided by proper pre-heating of mould, maintaining the correct mould temperature and correct use of release agent.
- 6- **Poor surface finish and sticking to mould** – In this quality defect, Surface finish of tyre does not come good and tyre sticks to mould while taking out after curing.
Countermeasure – This can be avoided by proper polishing of mould. Polishing of mould should regularly be done for avoiding this problem.



Fig. 4.1.1. Flash removal

Demonstrate

- Demonstrate different Tyre Moulding Defects.
- Demonstrate countermeasures for eliminating Tyre Moulding Defects.
- Demonstrate implications of Tyre Moulding Defects.

Activity-1

- Conduct a 'Post Tyre Moulding Operations Activity'
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Post Tyre Moulding Operations Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 30 minutes to perform 'Post Tyre Moulding Operations Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Post Tyre Moulding Operations Activity'	4 Hours	Cured tyre, Tyre De-flashing Tools, Batch Identification Tags, Inspection

Activity-2

- Conduct a 'Moulding Defect Identification Activity'
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Moulding Defect Identification Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 30 minutes to perform 'Moulding Defect Identification Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Moulding Defect Identification Activity'	4 Hours	Tyre samples with Moulding Defects, Flip Charts, Marker Equipment, Flip Charts, Marker

UNIT 4.2: Disposal of Rejected Tyre

Unit Objectives

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

1. Explain challenges in Tyre disposal.
2. Describe Tyre recycling.
3. Describe the uses of recycled Tyre.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Cured Tyre
- Field visit to Tyre Duming Yard
- Field visit to Tyre Recycling Plant

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

Field Visit

- Take Students for a field visit to the Tyre Dumping Yard.

4.2.1: Rejected or Scrap Tyre

Ask

- Ask students what could be the disposal methods for scrapped or rejected tyre.
- Ask students why scrap tyre disposal is important.

Say

Tyre is a commodity where reworking for any manufacturing defect is very difficult. Any rework might show up or may result in field failure. Since Tyre is a safety product, hence all companies take utmost care during manufacturing process and ensure that only best quality tyres are produced. With all the care still some rejection happens. We need to handle the rejected tyres carefully, since it is a hazardous item, if not disposed properly.



Fig. 4.2.1. Rejected tyre lot

4.2.2: Disposal of Scrap Tyres

Say

Every company has its own disposal procedure for disposing defective tyres, please read the procedure carefully. Tyre disposal is a difficult process and it has its own challenges –

4.2.2.1: Fire Hazard

Explain

As we know tyre is made of rubber and easily combustible. Once it catches fire, it may burn for long time till it gets burnt fully. Due to this hazard, it is not advisable to dump it in any open space.



Fig. 4.2.2. Fire in tyre stockpile

4.2.2.2: Space Occupying

Explain

Due to its volumetric construction and more than 75% void space, Tyres are not very easy to dump in landfills also. It consumes more space as compared to other scraps.



Fig. 4.2.3. Big space consumed by scrap tyres

4.2.2.3: Source of Land Pollution

Explain



Tires can trap methane gases, causing them to become buoyant, or bubble to the surface. This 'bubbling' effect can damage landfill liners that have been installed to help prevent landfill contaminants from polluting local surface and ground water.



Fig. 4.2.4. Land contamination caused by tyres

4.2.2.4: Hazards of Stockpiling

Explain



Stockpiling of Tyre is also a big health and safety risk. Fires incidents are easy in Tyre and can occur anytime. It may burn for long time and can create heavy pollution in the air. An additional health risk is, tyre piles provide harborage for vermin and a breeding ground for mosquitoes that may carry diseases. Illegal dumping of scrap tyres pollutes ravines, woods, deserts, and empty lots.



Fig. 4.2.5. Mosquito breeding in water trapped in tyre

4.2.3: Recycling of Tyre

Explain



Recycling helps to reduce the number of tyre scrap in storage. Shredded tyres are now being used in landfills, replacing other construction materials, for a lightweight back-fill in gas venting systems, leachate collection systems, and operational liners. Shredded tyre material may also be used to cap, close, or daily cover landfill sites. Scrap tyres as a back-fill and cover material are also more cost-effective, since tyres can be shredded on-site instead of hauling in other fill materials. Big companies have their own in-house plants for Tyre recycling and small organisations out source this activity.



Fig. 4.2.6. Shredded tyre for recycling

Field Visit



- Take Students for a field visit to the Tyre Recycling unit.

Activity-1

- Conduct a 'Tyre Disposal Hazard and Techniques of Tyre Disposal'
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Tyre Disposal Hazard and Techniques of Tyre Disposal'
- One group of Students will have 60 minutes for Creating the presentation. 30 minutes for giving presentation .
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Tyre Disposal Hazard and Techniques of Tyre Disposal'	4 Hours	Visit to Tyre dumping yard and Tyre Recycling units, Flip Charts, Marker Equipment, Flip Charts, Marker



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



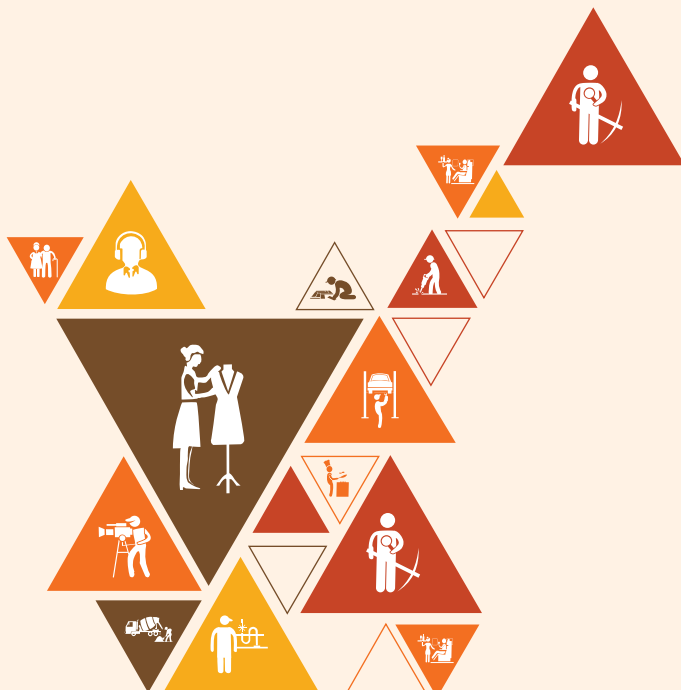
N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



5. Carry out Housekeeping in Rubber Product Manufacturing

Unit 5.1 – Need and benefits of Housekeeping
Unit 5.2 – '5S' Methodology of Housekeeping



RSC/Q5001

Key Learning Outcomes

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

1. Explain what is housekeeping
2. Define importance of Housekeeping
3. Describe purpose of Housekeeping
4. Explain benefits of Housekeeping
5. Explain what is '5S'
6. Define each 'S' and its meaning

UNIT 5.1: Need and Benefits of Housekeeping

Unit Objectives

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

1. Explain what is housekeeping.
2. Define importance of Housekeeping.
3. Describe purpose of Housekeeping.
4. Explain benefits of Housekeeping.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Different Cleaning Equipment

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

5.1.1: What is Housekeeping?

Ask

- Ask students what is Housekeeping

Say

Housekeeping is to keep all things in place at work place and keep the area clean and tidy.



Fig. 5.1.1. Housekeeping at workplace

5.1.2: Importance of Housekeeping

Ask



- Ask students what is the importance of Housekeeping.
- Ask students what are the benefits of Housekeeping.

Elaborate



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

Housekeeping is not just cleanliness. It includes keeping work areas neat and orderly; maintaining halls and floors free of slip and trip hazards; and removing of waste materials (e.g., paper, cardboard) and other fire hazards from work areas. It also requires paying attention to important details such as the layout of the whole workplace, aisle marking, the adequacy of storage facilities, and maintenance. Good housekeeping is also a basic part of accident and fire prevention.

TIP



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

5.1.3: Purpose of Housekeeping

Explain



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

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

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

5.1.4: Benefits of Housekeeping

Elaborate

Effective housekeeping results in:

1. Reduced handling to ease the flow of materials
2. Fewer tripping and slipping accidents in clutter-free and spill-free work areas
3. Decreased fire hazards
4. Lower worker exposures to hazardous substances (e.g. dusts, vapours)
5. Better control of tools and materials, including inventory and supplies
6. More efficient equipment cleanup and maintenance
7. Better hygienic conditions leading to improved health
8. More effective use of space
9. Reduced property damage by improving preventive maintenance
10. Less janitorial work
11. Improved morale
12. Improved productivity (tools and materials will be easy to find)



Fig. 5.1.2. Shop floor with good housekeeping

Demonstrate

- Demonstrate process of doing housekeeping.
- Demonstrate different housekeeping tools.
- Demonstrate difference between good and bad housekeeping and benefits of good

Elaborate

Do's

- Minimize fire hazards by keeping workplace free of accumulated combustible materials and waste.
- Ensure that exits and aisles are clear of obstructions, to allow easy evacuation of the building.
- Place all trash and scrap in proper containers.
- Keep oily rags in covered metal containers.
- Dispose of hazardous materials in approved marked containers.
- Store equipment and materials in their assigned location.
- Clean air vents and filters to maintain ventilation efficiency.
- Ensure that boxes, drums, and piles are located on a firm foundation and properly stacked.
- Clean up tools and unused materials after finishing a job or before leaving the job site.
- Clean up spills promptly according to the procedures, using personal protective equipment (PPE) wherever necessary.

- Report hazards such as uneven boards, cracks, burnt-out lights. Fix immediately.
- Bundle hoses and cables when not in use.
- Place empty containers and pallets in designated locations.
- Dump small containers into larger ones.

Elaborate



Don'ts

- Do not pile material around fire extinguishers, sprinklers, or emergency exits.
- Do not leave clean-up to last few minutes of shift or day.
- Do not clean equipment without "locking out."
- Do not reach into waste containers. Dump contents or remove bag.
- Do not blow off dust with compressed air. Use a vacuum or brush.
- Do not collect broken glass and metal straps in plastic bags.
- Do not use bare hands when collecting waste. Wear gloves to avoid cuts and splinters.
- Do not place materials on stairs.
- Do not use boxes as chairs or ladders.

Activity-1



- Conduct a 'Workplace Cleaning Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Workplace Cleaning Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 30 minutes to perform 'Workplace Cleaning Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Workplace Cleaning Activity'	4 Hours	Work Place, Cleaning Equipment, Flip Charts, Marker

UNIT 5.2: '5S' Methodology of Housekeeping

Unit Objectives

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

1. Explain what is '5S'
2. Define each 'S' and its meaning

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Different Cleaning Equipment

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

5.2.1: What is '5S'?

Ask

- Ask students what are the 5S for Housekeeping.
- Ask students, in which country 5S methodology originated.

Explain



Fig. 5.2.1. 5S cycle

'5S' is a system of steps and procedures that can be used by individuals and teams to arrange work areas in the best manner to optimize performance, comfort, safety, and cleanliness. The 5S method is the beginning of each program for improvement. It's a tool for helping the analysis of processes running on the workplace. The 5S is the methodology of creating and maintaining well organized, clean, highly effective and high quality workplace. It results in an effective organization of the workplace, reduction of work, elimination of losses connected with failures and breaks, improvement of the quality and safety of work. The philosophy of the 5S has its roots in Japan. The name 5S is the acronym of five Japanese words of the following meanings:

5.2.1.1: 1-S - Seiri – Sorting

Explain



Through the suitable sorting it is possible to identify the materials, tools, equipment and necessary information for realization of the tasks. Sorting eliminates the waste material (raw materials and the other materials), non-conforming products, and damaged tools. It helps to maintain the clean workplace and improves the efficiency of searching and receiving things, shortens the time of running the operation.

The 1S rule's proceedings:

a) On the first stage one should answer the below Control Questions:

- Are unnecessary things causing mess at the workplace?
- Are unnecessary remainders of materials thrown anywhere in the workplace?
- Are tools or remainder production material lying on the floor (in the workplace)?
- Are all necessary things sorted, classified, described and kept at their own place?
- Are all measuring tools properly classified and kept?

a) On the basis of the answers to the above questions, it is possible to estimate the workplace in terms of 1S rule. If for any question answer is yes, we should execute sorting of things at the workplace.

b) On the second stage one should execute the review of all the things, which are at the workplace and group them according to the definite system. According to carried out sorting, we should eliminate the things from the workplace, which were found “unnecessary”.

c) To make permanent the usage of 1S rule, the so-called Program of the Red Label is followed. It means giving the red label to things, which operator will recognize as useless within his workplace. This label will make possible not only the elimination of the given things, but it will also ensure that unnecessary things does not get accumulated at work place.



Fig. 5.2.2. 1S - Seiri

5.2.1.2: 2 S – Seiton – Set In Order

Explain

Especially important is visualization of the workplace (eg. painting the floor helps to identify the places of storage of each material or transport ways, drawing out the shapes of tools makes possible the quickly putting them aside on the constant places, coloured labels permit to identify the material, spare parts or documents etc.).

Estimating the workplace in terms of 2S rule that is setting things in order, serve the following Control Questions: -

- Is position (location) of the main passages and places of storing, clearly marked? Are tools segregated according to their regular or special use? Are all transport palettes stored till the proper height?
- Is anything kept in front of fire devices?
- Has the floor any irregularity, cracks or causes other difficulties for the operator's movement?

Things used occasionally and seldom should be on the workplace but outside the direct using sphere. Their distance and location from the place of work should depend on the frequency of using these materials or tools. Places of storage should be marked in a manner making their quick identification possible. We can use coloured lines, signs or tool boards.



Fig. 5.2.3. 2S - Seiton

5.2.1.3: 3 S – Seiso – Shine

Explain

Regular cleaning permits identification and elimination of sources of disorder and maintain a clean workplace. During cleaning, the cleanliness of machine, workplace and floor, tightness of equipment, cleanliness of lines, pipes, sources of light, current data, legibility and comprehensibility of delivered information etc, are checked .

Implementing the 3S rule:

The first step of realization of the 3S rule is renovation of the workplace. It is assumed that “the first cleaning” forces the implementation of the two previous rules. The usage of the 3S rule relies on everyday’s regular cleaning of the workplace. It is executed by the operator of the given workplace.

For estimating the workplace in terms of the 3S rule, that is cleaning the workplace, serve the following Control Questions:

- Are the oil stains, dust or remains of metal found around the machine or on the floor?
- Is machine clean?
- Are lines, pipes etc. clean, do they require repairing?
- Are oil pipe outlets clogged by some dirt?
- Are sources of light clean?



Fig. 5.2.4. 3S - Seiso

5.2.1.4: 4S – Seiketsu - Standardize

Explain



Worked out and implemented standards in the form of procedures and instructions permit to keep the order at the workplaces. Standards should be very communicative, clear and easy to understand. Regarding this, during preparation and improving, we should involve all participants of the process on the given workplace, it means direct workers. The group knows the best of its own activities, and process of elaboration and after that, usage gives them possibility of understanding the essence and each aspect of the operation. In the aim of assuring all the easy access, obligatory standards should be found in constant and visible places.

It is assumed that standards should not be implemented only in the typical operational processes e.g. production, maintenance, stores, but also in the administrative processes, for example: book-keeping, customer service, human resources management, or secretariat service.



Fig. 5.2.5. 4S - Seiketsu

5.2.1.5: 5 S – Shitsuke - Sustain

Explain



Implementation of 5S idea will demand from workers, compact self-discipline connected with the rules of regularity in cleaning and sorting. It leads to an increase in the consciousness of staff, and decrease in the number of non-conforming products and processes, improvements in the internal communication, and through this an improvement in the human relations.

It is also important to understand the need of executing the routine inspections of the 5S rule. This inspection is executed with the help of so-called Check Lists and on its basis the radar graph of the 5S is created, which serves to estimate the workplace. The inspection of realization of the 5S rule is executed once a month by a chosen team implementing the 5S rule – which is also called the control team.



Fig. 5.2.6. 5S - Shitsuke

Demonstrate



- Demonstrate process of doing 5S.
- Demonstrate importance of each 'S' in housekeeping.
- Demonstrate benefits of good housekeeping.

Activity-1



- Conduct a '5S Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on '5S Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 60 minutes to perform '5S Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Tyre Part identification '5S Activity'	7 Hours	Work Place, Bins for keeping segregated items, Cleaning Equipment, Flip Charts, Marker



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



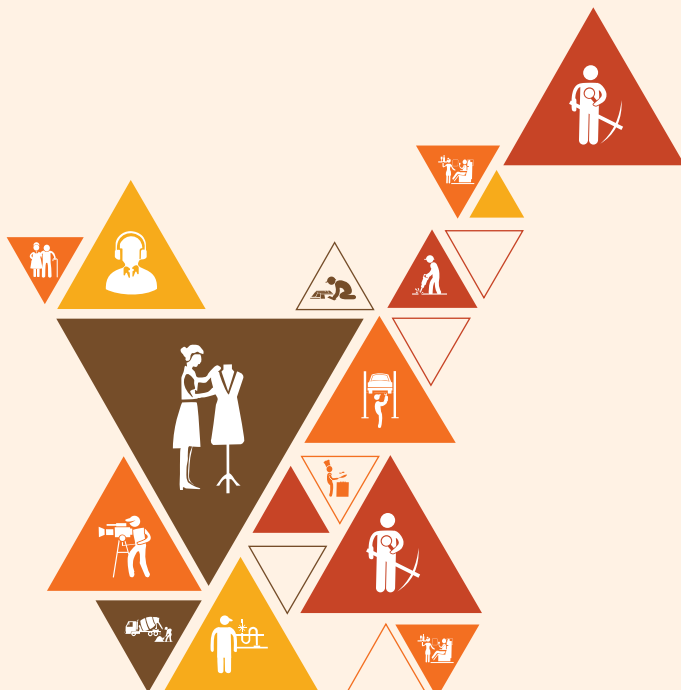
6. Carry out Reporting and Documentation

Unit 6.1 – Day to day activities documentation

Unit 6.2 – Organizational procedure for documentation and reporting

Unit 6.3 – Communication in Organization

Unit 6.4 – Work Management



RSC/Q5002

Key Learning Outcomes

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

1. Explain what is documentation
2. Describe the importance of Documentation.
3. Define Purpose of Documentation
4. Explain Types of Documentation
5. Describe common Documentation used in Tyre Industry
6. Explain what is reporting
7. Describe importance of Reporting
8. Explain about Government Act and Bylaws
9. Describe about rules.
10. Define meaning of Policies and Guidelines
11. Describe meaning of Procedure
12. Explain what is work instruction
13. Define what is communication
14. Describe communication process
15. Explain problems in communication
16. Describe various communication barriers
17. Explain traits of Active Listening
18. Discuss points of good writing skill
19. Explain how to resolve conflict with team member
20. Discuss Organisational Procedures for Reporting and Documentation
21. Decide priority of work required to be done
22. Describe how to select work to do from pending work

UNIT 6.1: Day to Day Activities Documentation

Unit Objectives

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

1. Explain what is documentation
2. Describe the importance of Documentation.
3. Define Purpose of Documentation
4. Explain Types of Documentation
5. Describe common Documentations used in Tyre Industry
6. Explain what is reporting
7. Describe importance of Reporting

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Sample of Documentations
- Sample of Reports
- Sample of Procedure
- Sample of Work Instructions

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts, now and during process of this course.

6.1.1: What is Documentation?

Ask

- Ask students what is documentation.
- Ask students, as per them what activities in Tyre Moulding should be documented.

Explain



Primarily creating records for any process or activity is called documentation. For example – creating inspection report for any product shall be called documenting the actual dimensions for the product. Also if we are creating minutes for any meeting, that will also be called as documenting the outcome of meeting. In any organisation there are many activities for which we need to document. For example – Production record, Part inspection report etc. This is required for reviewing the outcome later on. Unless these are documented, it is not possible to retrieve again upon requirement. In other words, recording any useful or required data is called, documentation.



Fig. 6.1.1. Documentation

6.1.2: Importance of documentation

Say



As mentioned earlier, documentation helps in reviewing the activities later on. There are lot of purpose and use of documentation, such as –

- | | |
|-------------------------|---|
| 1- Production recording | <ul style="list-style-type: none"> – to review production performance - To find out consumption of material - To report production quantity to Finance Department - To take order against produced quantity |
| 2- Inspection Report | <ul style="list-style-type: none"> – to verify that all dimension are ok or not ok - To report quality data to supervisor - To keep record, in case later on any issue is reported in part - To get deviation from supervisor, dimensional variation is minor |

6.1.3: Purpose of documentation

Say



It is very important to make document in any industry. Some of key purposes for documentation are –

- 1- For creating record for any process outcome, which can be retrieved in case of any requirement, such as part failure. Ex- Process parameter report.
- 2- For creating record for any process outcome, which need to be shown to supervisor. Ex- Part Inspection report.
- 3- For creating record for any meeting outcome, which can be retrieved in case of any dispute later on.
- 4- For reporting to any external agencies. For example – Filing records to pollution control deptt.
- 5- For follow up and analysis as may be required from time to time.
- 6- For procurement of quality materials by avoiding the sources which supplied the ingredients.

- 7- For rectification of the machines and accessories - when were they in operation when the defects had occurred.
- 8- For retraining the operators who were operating the machine when the defects occurred.
- 9- To change the SOP to avoid re occurrence of the same defects.
- 10- To plan for adaptation of new processes and new equipment. Lack of record keeping will result in breakdown of monitoring system.

6.1.4:Types of documentation

Explain



Normally there are two types of documentation –

- 1- Standard Documentation
- 2- Non-Standard Documentation

Standard Documentation –

All predefined report format are called Standard Documentation. It could be for inspection for product, attendance log etc. These are used for repeated nature of work.

DAILY MACHINE PRODUCTION REPORT															
Date		Machine Name				Total Available Time		DST							
Speed	Work Order No.	Size	Total Qty	Total of 2 (Change over)	Material Available	Job Misplaced	Stoppage					Total Production Qty			
							Mechanical Problem	Electrical Problem	Mould Sticking	Sample Check	Total Stoppage Minutes		Working Time Minutes	Target Production	Qty.

Fig. 6.1.2. Standard documentation

FIXTURE INSPECTION REPORT							Total No. Parts Inspected
Document No. / Date	Drawing No. / Date	Drawing Rev. No. / Issue / Details					
Fixture Code	Description of Fixture						
Inspection Name		Inspection Date	Certificate No. / Date				
Dimensional Inspection							
#	Specification	Location	Tolerance	Checking Method	Measure	Remarks	
01							
02							
03							
04							
05							
06							
07							
08							
Inspection results: <i>Pass/Fail/Conformance</i>							
Inspector							
Inspector Signature						Inspected by	

Non-Standard Documentation –

All the Documentation, which is done without any format is called Non-Standard Documentation. Writing mail or memo for any incident comes in this category.

6.1.5: Common Documentation in Tyre Industry

Say



As required in any other manufacturing industry, Tyre industry also has some common documentation. Some of them are following –

- 1- Production Plan
- 2- Production Report
- 3- Product Inspection Report

The above documentation is important from the point view of traceability, follow up action, statistical analysis and preventive and corrective actions.

6.1.6: What is Reporting

Ask



- Ask students what is Reporting.
- Ask students, as per them what activities should be reported to Supervisor and when.

Explain



To present data or information to supervisor is called 'Reporting'. Reporting can be 'Scheduled Reporting' or 'Unscheduled Reporting' also. Scheduled reporting is done on regular basis, such as Production reports or Machine breakdown reports. Normally, 'Scheduled Reports' have set format and time of reporting. On the other hand 'Unscheduled Reporting' is need based – based on supervisor requirement or while junior feel need of sending some important information to superiors.

6.1.7: Importance of Reporting

Elaborate



In any organisation reporting is very important. Based on reporting only senior management remains aware of day-to-day activities. Reporting is necessary to run operation as well as it is very essential for making improvements in operations. For Example – through reporting only management shall come to know any downfall in production. Based on that report only management can take some action to improve productivity.

Similarly, without reporting, supervisor will not be aware whether production is completed against plan or not. He or she can take decision only when he / she gets production report.

6.1.8: Example of some reports in Tyre Industry

Explain



EPDM RUBBER		
GRADE	PURE	
FINISH	SMOOTH BOTH SIDES	
COLOR	BLACK	
TECHNICAL SPECIFICATIONS		
Test Standard	GB/T5574-94	REMARK
Test Temperature	24°C	
Item	Test	
Colour	Transparent	
Tensile Strength at Break	3MPa	
Hardness	60±5 Shore A	
Elongation at Break	150-200%	
Density	1.5g/cm ³	
TEMPERATURE RANGE	-20°C TO 100°C	
Test Conclusion	Across the above tests, the result is up to the Chinese standard of GB/T5574-94. It is the eligible product.	
Remark	Seal for inspection report CUT EDGE ROLLS	

Fig. 6.1.3. Rubber test report

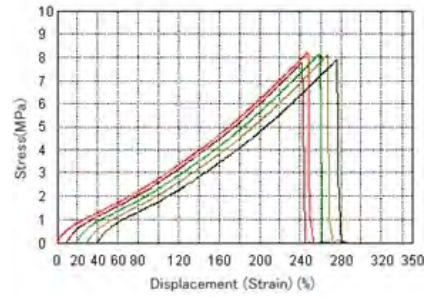


Fig. 6.1.4. Rubber stress / strain report

Demonstrate



- Demonstrate different types of documents being used in Tyre Industry.
- Demonstrate filling up of documents under responsibility of Tyre Moulding operator.

Activity-1



- Conduct a 'Daily Production Report Filling Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Daily Production Report Filling Activity'.
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 60 minutes to perform 'Daily Production Report Filling Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Daily Production Report Filling Activity'	7 Hours	Work Place, Bins for keeping segregated items, Cleaning Equipment, Flip Charts, Marker

UNIT 6.2: Organisation Procedure for Reporting and Documentation

Unit Objectives

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

1. Explain about Government Act and Bylaws
2. Describe about rules
3. Define meaning of Policies and Guidelines
4. Describe meaning of Procedure
5. Explain what is work instruction
6. Discuss Organisational Procedures for Reporting and Documentation

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course.

6.2.1: Government Acts and Bylaws

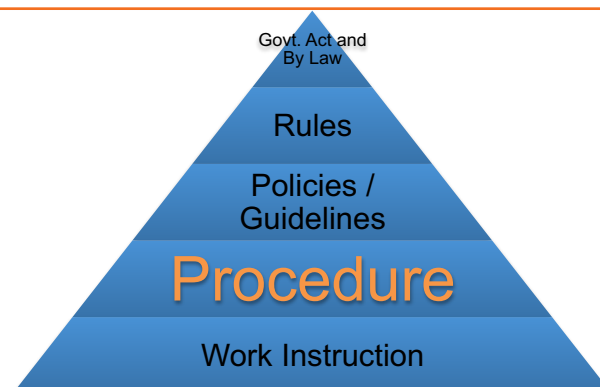


Fig. 6.2.1. Rules pyramid

Ask

- Ask students their understanding of Law, Rule, Policy, Procedure and Work instruction.
- Ask students, why it is important to have procedure and work instructions in an organisation.

Explain

Government Acts are those Acts and laws, which are made by Government and following these Acts are compulsory. There is a penalty for not following Government Acts. Examples of this is Income Tax Act, Sales Tax Law, etc.

6.2.2: Rules**Explain**

Authoritative statement for what to do and what not is called Rule. It is given by an appropriate person of body. The Rule is applicable in that forum or body which is controlled by rule making person. This can be any organisation, society or community of persons.

6.2.3: Policies and Guidelines**Explain**

A policy is a definitive principle or rule that an organisation must follow to reach its long-term goal. Typically, a policy marks out an organisation's views with respect to a particular matter.

Company guidelines establish the rules of conduct within an organisation. Guidelines define the responsibilities of both the employees and employer. Company policies and procedures are made in place to protect the rights of employees as well as the business interest of employers.

Employees, including managers and supervisors, are expected to uphold company policy and work according to it. The employees should complete tasks accurately by being flexible and adapting to work plans and procedures as per the company policies.

Most organisations have a handbook of policies and guidelines to be referred to by employees, as shown in following figure:

Make sure you take a look at the handbook thoroughly before within the first few days of joining the job. You can request for the handbook to your supervisor

Some typical company guidelines include:

- Employee code of conduct (for example, dress code and behavioral approach)
- Attendance policy (for example, time of entry into and exit from the workplace)
- Leave policy (for example, different types of leaves)
- Workplace safety (for example, understanding and following fire safety guidelines)

- Harassment policy (for example, engaging in a course of unwelcoming comment or conduct against a worker in a workplace)
- Substance abuse policy (for example, ban of smoking, alcohol, and drugs)
- Property abuse policy (for example, damaging company assets)

6.2.4: Procedure

Explain

Procedure is a broad guideline for carrying out any activity. In order to eliminate ambiguity in carrying out regular activities all organisation make procedures for all day-to-day activities. All employees should read these procedures carefully before carrying out those activities.

Procedures help an organisation to:

- Provide a framework for actions that help employees quickly understand what is expected of them
- Stop employees from discussing and re-discussing the same issues every time they arise
- Help in legal matters
- Act as a tool to improve the quality
- Create goodwill and trust among employers, customers and clients
- Help employees behave in a professional and responsible manner

6.2.5: Work Instruction

Explain

Work Instruction is detailed form of procedure. It has step-by-step details of method for carrying out that activity.

6.2.6: Organisational Procedure for Reporting and Documentation

Explain

It is important to keep your supervisor and co-workers informed about any issues related to malfunctioning of equipment, task completion difficulties and timelines, progress and any other work related issues. Such issues may include:

- 1- Volume of work
- 2- Quality of work
- 3- Time within which work needs to be completed

Since reporting and documentation is very important, hence it can not be left on people to decide that in which format and structure they would document and report.

An organisational procedure has details of all requirements of Documentation and reporting. Such as –

- 1- Format of report
- 2- Who to create
- 3- To whom it should be submitted
- 4- Frequency of reporting
- 5- Place of filing documentation
- 6- Retention duration of document to keep

Demonstrate

- Demonstrate hierarchy of Tyre Industry and position of Tyre Moulding Operator.
- Demonstrate reporting process in different situations of Tyre moulding operation.

Activity-1

- Conduct a 'Follow Procedure Activity'.
- Ask the students to make group of 5 students.
- Students have to follow sample procedure for any given Activity
- One group of Students will have 60 minutes for completing the Activity.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Follow Procedure Activity'	4 Hours	Sample procedure, related machine or equipment

UNIT 6.3: Communication in Organization

Unit Objectives

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

1. Define what is communication
2. Describe communication process
3. Explain problems in communication
4. Describe various communication barriers
5. Explain traits of Active Listening
6. Discuss points of good writing skill
7. Explain how to resolve conflict with team member

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

6.3.1: What is Communication?

Explain

Communication is exchange of information between people. It can be in the form of oral words, written words, drawings or physical actions. Communication is essential to express ideas and thoughts to friends, family, co-workers, and customers. Communication also plays a major role in information exchange and decision-making.

6.3.2: Types of Communication

Explain



There are two types of Communication -

1- Verbal

2- Non- Verbal

Verbal Communication - When information is exchanged between the parties through words, it is called verbal communication. It is a word-based communication. Verbal Communication has two types –

1- Written Communication, and

2- Oral Communication.

Written Communication - When a message is exchanged or communicated in a written form, it is called written communication. It is also a word based communication. It is widely used when the permanency and record of the message are important and when the audience stays at a distance. It takes different forms like letters, memos, reports etc.

Oral Communication - When a message is exchanged between the parties orally, it is called Oral Communication. It is also a word-based communication but not in written form rather in verbal or oral form. Major forms of Oral Communication include conversation, interview, telephone, speech etc.

Non-Verbal Communication - Communication without using words is called non-verbal communication. It is not a word-based communication. It does not use any written or spoken words but uses symbols, body language, color etc. to convey message. Non Verbal Communication can be visual, audio-visual and silent.

6.3.3: Problems in Communication

Explain



In the process of communication, care has to be taken so as to avoid communication barriers that can come up either consciously or unconsciously. Communication barrier can cause losses to a company in terms of money and productivity. Without good communication, a company is unable to exchange information essential to daily operations. But at times, people fail to understand communication. Following are some of the symptoms of communication problems in an organization:

- Lack of teamwork
- Poor planning or workload
- Insufficient resources and support
- Lateness
- Poor work quality
- Difficult people

6.3.4: Common Barriers of Communication

Explain



Assumption - Generally senders forget to communicate complete information to the receiver assuming that the receiver would already know what has to be done. On the other hand, receiver might assume an entirely different scenario causing a barrier in communication.

Use of Jargons - Some people are in the habit of using jargons in their communication message. But they fail to understand that their jargons may not be clear to the receiver of the message. The receiver might misunderstand them causing a barrier in communication.

Incomplete Sentences - At times, people leave their sentences incomplete, like “I wanted to go but....”. This leaves the receiver with numerous assumptions and the exact message cannot be conveyed.

Psychological Barrier - The state of mind and mood of the sender and the receiver also affect the message delivery. If a person is in a bad mood, then a positive message can also sound negative. Senders may also spoil the message delivery by over communication the message, that is, communicating the same message through different channels and also giving too much information to make a point. This confuses the receiver and the message context may not be clear.

Language Difference - The difference of language between the sender and receiver can also a cause a major barrier in communication delivery. So they both should make sure that the language used for communication is understandable to both. Or else the entire process of communication ends up in being a failure.

Prejudice - The receiver might have some prejudices about the sender may be based on cast, culture, status, etc. In such cases the receiver can misunderstand the exact idea of the communicated message. For example, a supervisor feels that the subordinate is not a sincere worker. So the supervisor due to his prejudice towards the subordinate will misjudge every communication of this subordinate.

Physical Barrier - One of the major barriers to communication is the physical barrier. Physical barriers are present in the area surrounding the sender and receiver. Physical barriers include a work environment that has a lot of background noise, poor lighting or unstable temperature. These barriers can affect how individuals try to send and receive messages. If there is a lot of background noise than the receiver may not hear what the sender is saying. If the temperature in a work environment is too hot or too cold the sender may not be as focused on the message that they are trying to send. If people in the work place are separated by others, communication is not as effective. Proximity to others aids communication because it helps them get to know one another.

6.3.5: Active Listening

Explain



Listening is an underestimated skill, which is rarely taught and mostly neglected by all. Active listening means listening to understand the communication. Active listening is an art that comes by practice. It takes more effort than plain “hearing” but the benefits make it worthwhile. Listening goes beyond hearing.

Below are some tips to improve active listening:

Keys to effective listening	The bad listener	The good listener
Find areas of interest	Switches off during boring or dull subjects	Asks if there might be something of relevance to him
Judge content not delivery	If delivery is poor, switches off	Considers content, skips over errors of delivery
Hold your fire	Jumps in before hearing the full argument	Waits until he understands fully before exercising his opinion
Listen for ideas	Listens for facts	looks for a theme or thread in what is being said
Be flexible	Takes copious notes using only one system	Takes fewer notes. Uses several systems according to the speaker
Work at listening	Makes no real effort to listen – fakes his attention	Works hard to concentrate
Resist distractions	Is easily distracted	Fights or avoids distractions, tolerates bad habits, knows how to concentrate
Exercise your mind	Avoids difficult material, looks for light relief	Seeks complex material to exercise his mind
Keep your mind open	Reacts to emotional words	Hold his emotions in check

6.3.6: Writing Skills

Explain



For getting success in any industrial organisation writing skill is also very important. Some of the key instruction for good writing skill are -

Clarity in Content - Your writing must be understood at the first reading. A business document is clear when it means exactly what the writer intends. Avoid technical jargon, unfamiliar words or formal language. Eliminate ambiguity, i.e. avoid using a word with a double meaning or misplacing a phrase within a sentence.

Remain Brief - Avoid unnecessary repetition. Include only relevant information. Come to the point quickly and without “waffle”. Omit unnecessary background information. Use short, familiar words instead of long words. Revise your first draft, looking for ways to reduce the number of words or to cut out unnecessary information.

Be Complete - Check that all the information the reader will need is included: Who? What? Where? When? Why? How?

Accuracy in Spelling and Facts - Check your work for accuracy of punctuation, grammar and spelling (especially the names of people and places). Check for accuracy of information: e.g. times, dates, figures and telephone numbers. Check for consistency of layout.

Be Convincing -

- Use language that is believable.
- Avoid exaggeration and superlatives.
- Suggest possibilities or probabilities rather than making forceful assertions.
- Provide supporting arguments for your point of view – e.g. provide examples, statistics or a quote from a respected authority.

Show Courtesy in Words -

- Display good manners and a caring attitude in your writing.
- Whenever possible, phrase your writing positively with a pleasant tone.
- Passive voice should be used when communicating bad news. This avoids negative overtones and personal criticism. Use language that is rational and unemotional.

6.3.7: How to Resolve Conflict

Explain



When people work together, conflict is often unavoidable because of differences in work goals and personal styles. Follow below guidelines for handling conflict in the workplace.

Talk with Other Person -

- Ask the other person to name a time when it would be convenient to meet.
- Arrange to meet in a place where you won't be interrupted.

Focus on Behavior and Event not on Personalities -

- Say “When this happens ...” instead of “When you do ...”
- Describe a specific instance or event instead of generalizing.

Listen Carefully -

- Listen to what the other person is saying instead of getting ready to react.
- Avoid interrupting the other person.
- After the other person finishes speaking, rephrase what was said to make sure you understand it.
- Ask questions to clarify your understanding.

Identify Points of agreement and disagreement -

- Summarize the areas of agreement and disagreement.
- Ask the other person if he or she agrees with your assessment.
- Modify your assessment until both of you agree on the areas of conflict.
- Ask questions to clarify your understanding.

Prioritize Areas of Conflict -

- Discuss which areas of conflict are most important to each of you to resolve.

Develop a Plan to Work Upon each Conflict -

- Start with the most important conflict.
- Focus on the future.
- Set up future meeting times to continue your discussions.

Follow through on Your Plan -

- Stick with the discussions until you've worked through each area of conflict.
- Maintain a collaborative, "let's-work-out-a-solution" attitude.

Build on your Success -

- Look for opportunities to point out progress.
- Compliment the other person's insights and achievements.

Demonstrate 

- Demonstrate skills of good communication.
- Demonstrate barriers of communication.
- Demonstrate skills of good writing.
- Demonstrate how to resolve conflict between fellow workers.

Activity-1 

- Conduct a 'Elimination of Communication Barrier Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Elimination of Communication Barrier Activity'
- One group of Students will have 30 minutes for Creating the presentation. 30 minutes for giving presentation and 30 minutes to perform 'Elimination of Communication Barrier Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Elimination of Communication Barrier Activity'	4 Hours	Communication topics, Flip Charts, Marker

UNIT 6.4: Work Management

Unit Objectives

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

1. Decide priority of work required to be done
2. Describe how to select work to do from pending work

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

6.4.1: Plan and Manage Work

Ask

- Ask students what is the importance of Planning.
- Ask students, why it is important to do work management.

Explain

In any working day we have to do lot of activity. It is important to complete all activity, but there are some which are absolute necessary to complete on time. This is only possible when we do work based on priority. Here we will learn how to prioritize our work.

First we have to divide our work in 4 categories –

- 1- Important and necessary
- 2- Not important but necessary
- 3- Important but not necessary
- 4- Not important and not necessary

Once we have divided the all work available, we need to following –

- 1- Discard all activities, which are in category 4 'Not important and not necessary'.
- 2- Review first category work, which is 'Important and necessary'. Do big duration work, out of this category initially and small duration later on.
- 3- Then do work from category 2, which is 'Not important but necessary'. Such as – arranging tyre for moulding, arranging equipment for next operation etc.
- 4- At last, do work from category 3, 'Important but not necessary'. Such as – Informing Supervisor for work progress.

Above way of prioritizing will help in completing all work in time.

Demonstrate



- Demonstrate how to manage Tyre Moulding activity.
- Demonstrate how to prioritize activities related to Tyre Moulding.
- Demonstrate implications of not planning your activities.

Activity-1



- Conduct a 'Work Management Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Work Management Activity'
- One group of Students will have 30 minutes for Creating the presentation on Tyre Moulding Activities. 30 minutes for giving presentation and 30 minutes to perform 'Work Management Activity'.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Work Management Activity'	4 Hours	Detail of Tyre Moulding Activities, Flip Charts, Marker





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

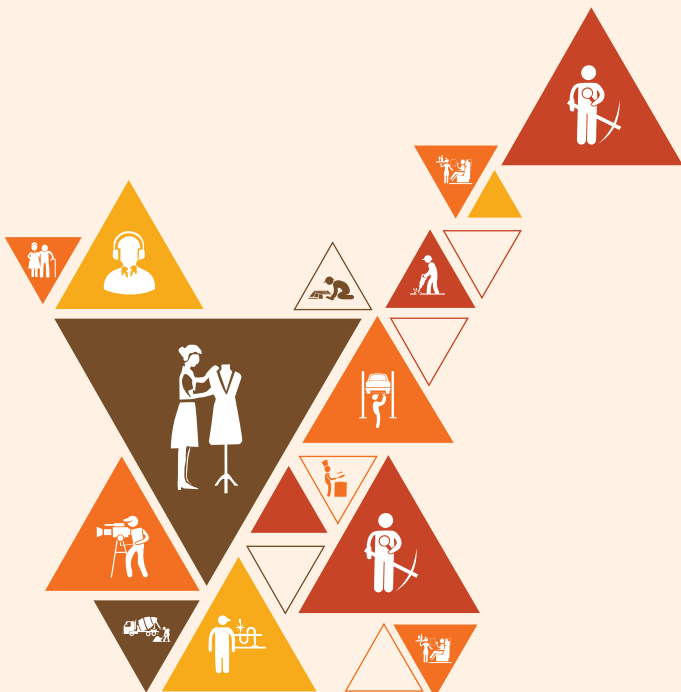
Transforming the skill landscape



7. Carry Out Quality Checks

Unit 7.1 – Inspection equipment for Tyre Inspection
and Inspecting Tyre

Unit 7.2 – Defects in Tyres



RSC/Q5003

Key Learning Outcomes

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

1. Define need of Quality Control in Tyre Moulding
2. Identify and discuss Measuring equipment for Tyre Inspection
3. Discuss methodology of Problem solving
4. Describe implication of Tyre Defects

UNIT 7.1: Inspection Equipment for Tyre Inspection and Inspecting Tyre

Unit Objectives

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

1. Define need of Quality Control in Tyre Moulding
2. Identify and discuss Measuring equipment for Tyre Inspection
3. Discuss methodology of Problem solving
4. Describe implication of Tyre Defects
5. Perform Visual Inspection Moulding Tyre
6. Define various Quality defects in Tyre

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Tyre / Tyres with different Quality defects
- Different Inspection Tools – Vernier Caliper, Micrometer, Rubber Hardness Tester, Measuring Tape, X-Ray Machine

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

7.1.1: Quality Control in Tyre Moulding

Ask

- Ask students Quality issues in Tyre
- Ask students, what will be the implication of quality issues in Tyres.

Explain



The quality control procedures are necessary from the point of view of meeting the customer specifications. Routine quality control checks on sample also indicate the trend of quality (upward or downward) and help in taking appropriate corrective action in advance. The quality check procedure are designed to give advance intimation about improving or deteriorating trend of quality and help in taking preemptive actions to reverse any deteriorating trend and then bring the quality parameters in line with the quality objective.

Normally the procedure for testing the tyre moulded product is by random sampling from the production bins kept near the machines in the shop floor. The quality plan in the SOP clearly defines the frequency and size of the samples to be checked, while many of the visual checks are done by the production operator, any inspection involving instruments is done by either quality inspector or in the laboratory by lab technician. Appropriate work instructions should be available for doing the above activities.

Generally the cured tyre product characteristics are 'uniform smooth finish of the product without tool marks, without air blisters, without flow lines'. Other important characteristics could also be either diameter or thickness or width of the product which are normally inspected at the machine area itself with the help of angle and height gauges.

Equipment should be appropriate to the test being conducted such as Vernier calipers, Micrometer, X-ray machine, Hardness tester, etc. Appropriate monitoring and measuring equipment should be available at the required places such as shop floor inspection table or near the moulding operator.

7.1.2: Inspection Technique for Cured Tyre

Explain



A variety of nondestructive evaluation techniques are also used in tire quality control. X-ray videography provides a quick and revealing view through a tyre. In an X-ray tyre test, a tyre is selected at random and taken to a radiation booth where it is bombarded with X-rays. A test technician views the X-ray image on a video screen, where tyre defects are easily spotted. If a defect shows up, manufacturing engineers review the specific steps of tire component assembly to determine how the flaw was formed.

Tyre inspection is the last step in tyre manufacturing process—an important step in ensuring quality in both performance and safety. The tyre inspection includes:

- Visual inspection for appearance and to spot obvious defects
- X-ray examination to check internal structure and to spot defects
- Tyre uniformity, and weight balance inspection

7.1.3: Inspection and Measuring Instrument

Say

Following instruments are used for Measurement of Moulding Tyre –

- Vernier caliper,
- Micrometer
- Hardness tester
- Measuring tape
- Tread Depth Gauge

7.1.3.1: Vernier Caliper

Explain

Vernier calipers can measure internal dimensions, external dimensions using the lower jaws and depending on the manufacturer, depth measurements by the use of a probe that is attached to the movable head and slides along the center of the body. This probe is slender and can get into deep grooves that may prove difficult for other measuring tools. The vernier scales may include both metric and inch measurements on the upper and lower part of the scale.

Vernier calipers commonly used in industry provide a precision to a hundredth of a millimeter (10 micrometers) or one thousandth of an inch. A more precise instrument used for the same purpose is the micrometer.

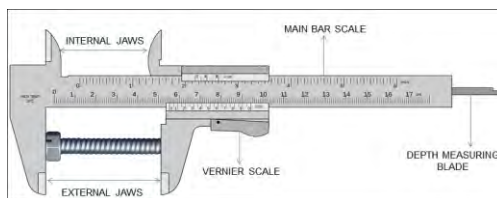


Fig. 7.1.1. Vernier caliper

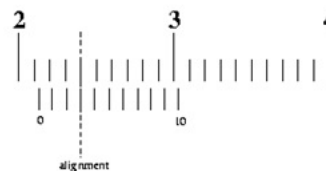


Fig. 7.1.2. Taking reading from vernier caliper

7.1.3.2: Micrometer

Explain

Micrometer is another instrument for doing accurate dimensional measurement. It works on screw gauge principle. It has least count of 0.001 Cm.



Fig. 7.1.3. Micrometer

7.1.3.3: Hardness Tester

Explain



Since it check hardness on Shore Scale, hence it is also called 'Shore Hardness Tester'. It is used to check the hardness of the tyre compound. The basic test requires applying the force on a tyre sample in a consistent manner, without shock, and measuring the hardness (depth of the indentation).

If a timed hardness is desired, force is applied for the required time and then reading is taken.



Fig. 7.1.4. Rubber hardness tester

7.1.3.4: Measuring Tape

Explain



A simple measuring instrument consisting of a long, thin metal strip with a marked scale of unit divisions.

This is used for measuring straight dimensions.



Fig. 7.1.5. Measuring tape

7.1.3.5: Tread Depth Gauge

Explain



Tread Depth Gauge is a special instrument which is used for checking depth of tread blocks in Tyre. It has one strip which is attached to a slider, which slides on reading scale.



Fig. 7.1.6. Tyre tread depth gauge

7.1.3.6: X-Ray Machine

Explain



In an X-ray tyre test, a tyre is selected at random and taken to a radiation booth where it is bombarded with X-rays. A test technician views the X-ray image on a video screen, where tyre defects are easily spotted.

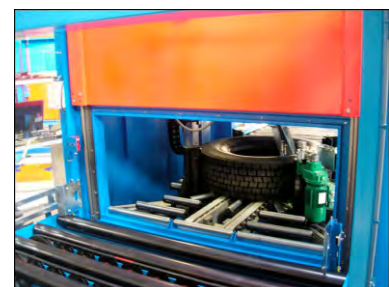


Fig. 7.1.7. Tyre X-Ray Machine

7.1.4: Quality Defect analysis and Countermeasures

Explain



In principle, all quality problems generate due some issue in manufacturing process of design fault. If we can analyze the problem and can understand the problem root cause, then we can eliminate the problem by taking appropriate action on the problem. The most used tools for root cause analysis are -

- 1- Fish-bone Diagram
- 2- Why-why analysis

UNIT 7.2: Defects in Tyre

Unit Objectives

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

1. Perform Visual Inspection Moulding Tyre
2. Define various Quality defects in Tyre

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- Tyres with defects

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

7.2.1: Quality Defect in Tyre

Explain

Same as in other manufacturing process, Tyre manufacturing is also depends on various machine / man performance. Any variation in parameter or setting can generate a defect.

Tyre manufacturing has evolved very much and machines and process are very robust, still some defects generate.

Since Tyre is a safety product and any field failure can cause customer life, hence it is very important that all the defects are minimized and contained in factory. There should not be a single defective part go to customer.

All tyre companies follow multi-layer quality control system to ensure defect free part to customer. All tyres are checked after every process and in the end they are checked for many parameters, such as - Dimensional, fitment and performance.

7.2.2: Quality Defect in Tyre

Explain



Although tyre is inspected after each process during manufacturing, still some defects are visible only after curing. Some of the common defects are -

- 1- Over Cure
- 2- Under Cure
- 3- Bubble
- 4- Insufficient filling of the compound
- 5- Low bonding strength with the beads
- 6- Cracking between Tread
- 7- Letter Defect
- 8- Bead Separation, Tread Separation and Belt Separation

7.2.2.1: Over Cure

Explain



Explain how in this defect tyre is over cured. This happens due to

- Wrong parameter setting
- Wrong compound used
- Machine malfunctioning

Due to this, tyre becomes harder than specification and tyre life is affected. This defect also affect tyre grip over road, which becomes a safety issue.

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

7.2.2.2: Under Cure

Explain



Explain how this is a similar defect as mentioned above. But in this defect Tyre is less Cured. This happens due to

- Wrong parameter setting
- Wrong compound used
- Machine malfunctioning

Due to this, tyre remains softer than specification and tyre life is affected. This defect also affect tyre grip over road, which becomes a safety issue.

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

7.2.2.3: Bubbles

Explain



In this defect bubbles are generated in tyre. This happens due to

- Compound defect
- Defect in Tyre Building Process
- Release agent not proper
- Mould Pre-heating not proper

This defect also affects tyre life.

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

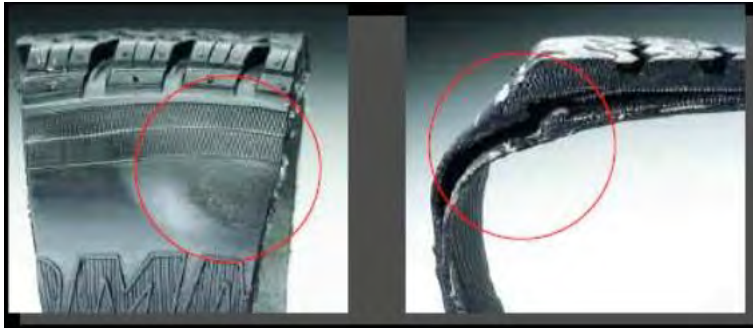


Fig. 7.2.1. Bubble defect

7.2.2.4: Insufficient Filling of Compound

Explain



In this defect at some place tyre has less rubber. This happens due to

- Compound defect
- Defect in Tyre Building Process
- Release agent not proper
- Mould Pre-heating not proper
- Heating during process is not proper, so flow of Rubber is not correct

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

7.2.2.5: Low Bonding Strength with Bead

Explain



In this defect Beads are not properly bonded with Tyre Sidewall Rubber. This happens due to

- Compound defect

- Defect in Bead Assembly in Tyre Building Process
- Heating during process is not proper, so flow of Rubber is not correct

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

7.2.2.6: Cracking between Treads

Explain



In this defect Cracks are generated in Tread Blocks. This happens due to

- Compound defect
- Curing process not proper

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

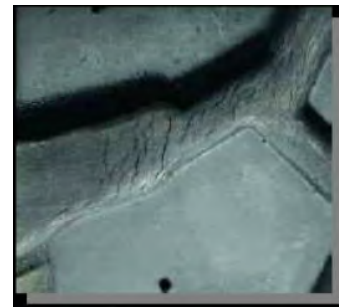


Fig. 7.2.2. Crack defect

7.2.2.7: Letter Defect

Explain



In this defect Sidewall Coding is not created properly. This happens due to -

- Mould Cleaning not done
- Release agent not proper
- Mould Pre-heating not proper
- Heating during process is not proper, so flow of Rubber is not correct

This defect can be corrected by taking countermeasures for above listed issues causing this problem.

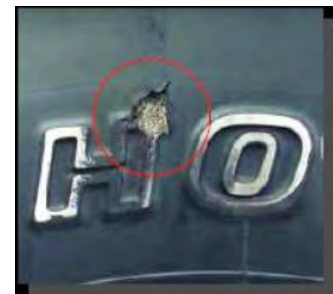


Fig. 7.2.3. Letter defect

7.2.2.8: Bead, Tread and Belt Separation

Explain



In this defect bonding of all parts of tyre is not proper. This happens due to

- Compound defect
- Defect in Tyre Building Process
- Mould Pre-heating not proper
- Heating during process is not proper, so flow of Rubber is not correct

This defect can be corrected by taking countermeasures for above listed issues causing this problem.



Fig. 7.2.4. Bead / tread / belt separation

7.2.3: Quality Defect Analysis and Countermeasure

Explain

In principle, all quality problems generate due some issue in manufacturing process of design fault. If we can analyze the problem and can understand the problem root cause, then we can eliminate the problem by taking appropriate action on the problem. The most used tools for root cause analysis are -

- 1- Fish-bone Diagram
- 2- Why-why analysis

7.2.3.1: Fish-Bone Diagram

Explain

Explain the name and how it appears to be a fish-bone, and why it is called fish-bone diagram. In this process, one team is made of all persons of related deptt. for example - for any manufacturing defect related issue, the team will have persons from Production, Quality, Process Engineering and design dept.

All person will first analyze the problem and then think that what could be the possible reasons which could create the problem. The key to this process is, that nobody question the other team member during this reason identification process. Once all the possible reasons are written then next step is to review all reasons and their actual contribution to problem.

After deep analysis, only most relevant reasons are left. Now action are taken on these reasons, which normally resolve the problem. If problem is still not resolved, then this process can be repeated again.

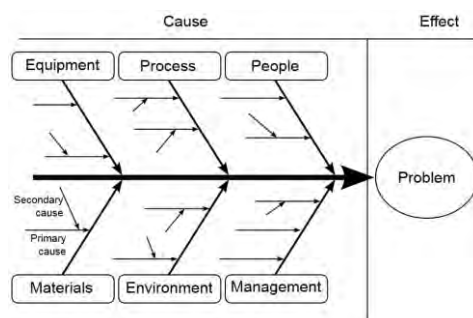


Fig. 7.2.5. Fish-bone diagram

7.2.3.2: Why-Why Analysis

Explain



In this method of problem solving, Why's are asked for reason for any problem. These why's are asked till we reach last level of any process. Normally in 5 why's we reach to actual reason. This is very good for in-depth analysis. For Example - Defect of Tyre surface is not good can be analysed as below -

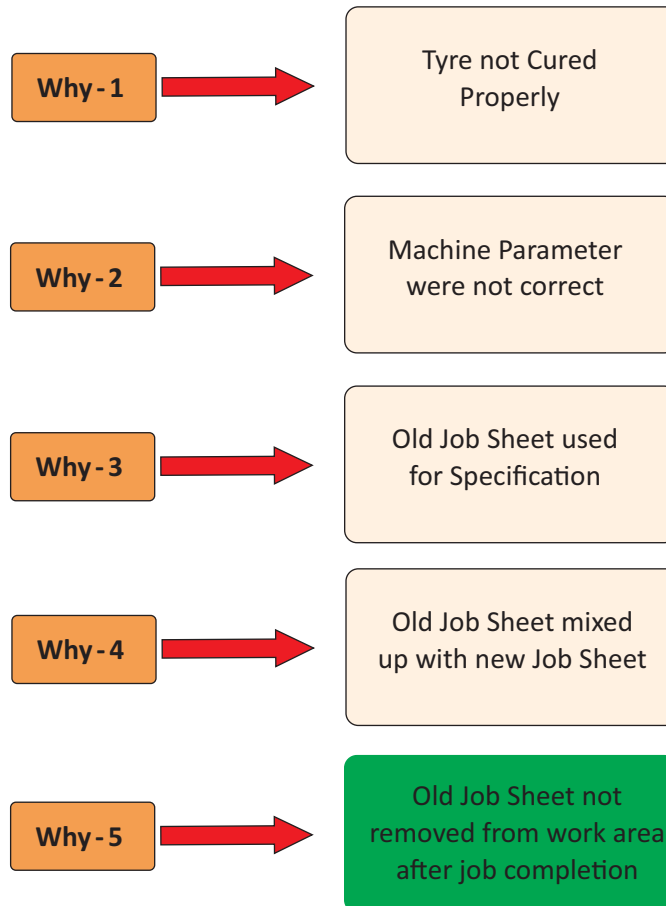


Fig. 7.2.6. Why-why analysis

Demonstrate



- Demonstrate different types of Tyre Defect.
- Demonstrate implications of Tyre defects on Tyre performance.

Activity-1



- Conduct 'Identify Tyre Defects Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Identify Tyre Defects Activity'.
- One group of Students will have 30 minutes to perform 'Identify Tyre Defects Activity'. 30 minutes for giving presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Identify Tyre Defects Activity'	4 Hours	Defective Tyre Samples, Flip Charts, Marker

Activity-2

- Conduct 'Fish-Bone Diagram making Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Fish-Bone Diagram making Activity'.
- One group of Students will have 30 minutes to make 'Fish-Bone Diagram making Activity'. 30 minutes for giving presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Fish-Bone Diagram making Activity'	4 Hours	Defective Tyre Samples, Flip Charts, Marker

Activity-3

- Conduct 'Why-Why Analysis Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Why-Why Analysis Activity'.
- One group of Students will have 30 minutes to do 'Why-Why Analysis Activity'. 30 minutes for giving presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Why-Why Analysis Activity'	4 Hours	Defective Tyre Samples, Flip Charts, Marker



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



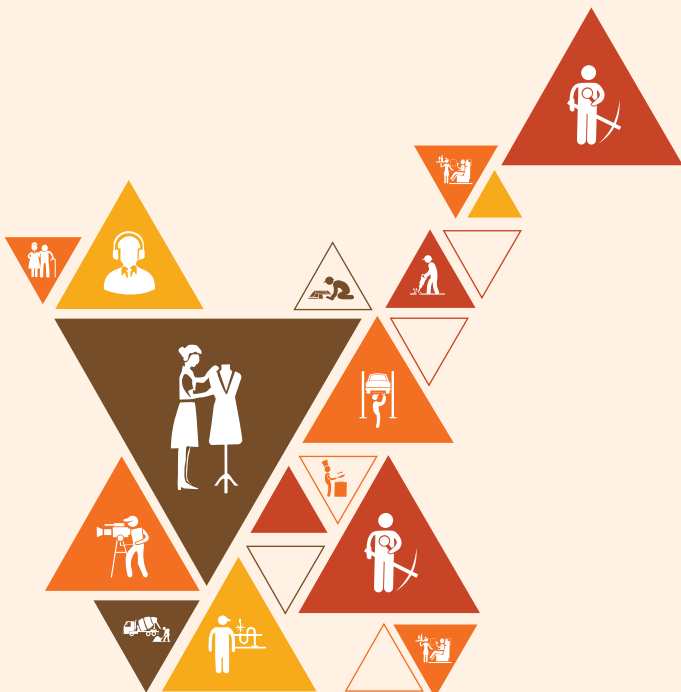
8. Health & Safety

Unit 8.1 – Hazards in Tyre Industry

Unit 8.2 – Health & Safety requirement at work

Unit 8.3 – Tyre Moulding Safety Equipment

Unit 8.4 – Handling Fire hazard and other Emergencies



Bridge Module

Key Learning Outcomes

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

1. Describe the Hazards
2. Identify Hazard in Tyre Industry
3. Describe Chemical hazard
4. Describe Physical hazard
5. Describe Ergonomic hazard
6. Explain the health and safety requirements for Tyre Industry
7. Discuss health and safety procedure of organisation
8. Explain what is PPEs
9. Discuss requirement of PPE
10. Identify different types of PPEs used in Rubber and Tyre Industry
11. Describe the purpose of various PPEs used in Rubber and Tyre Industry
12. Demonstrate the Use of different PPEs.
13. Define what is emergency
14. Describe various emergency situations in Industry
15. Describe common injuries in industry
16. Describe First Aid box and its constituents
17. Demonstrate how to handle Fire Emergencies
18. Demonstrate how to use a multi purpose Fire Extinguisher
19. Describe type and class of Fires
20. Describe suitable fire extinguisher as per fire type and class

UNIT 8.1: Hazards in Tyre Industry

Unit Objectives

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

1. Explain what is hazard
2. Identify Hazard in Tyre Industry
3. Describe Chemical hazard
4. Describe Physical hazard
5. Describe Ergonomic hazard

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

8.1.1: What is Hazard?

Explain

'Hazard' is set of conditions, which can be risk to health or life. It can be atmosphere of work place or construction of machine or working procedure. Anything out of these or alone can be a Hazard. For understanding it better we can see Examples of various hazards and threat possessed by them. Oil on floor creates Slip hazard. Use of Asbestos creates Cancer and other breathing problem hazard. Use of broken electric wires creates electrocution hazard and fire hazard by potential sparking out of it.



Fig. 8.1.1. Hazard

8.1.2: Hazards in Tyre Industry

Ask



- Ask students their understanding of hazards in Tyre Industry.
- Ask students the implications of different hazards in Tyre Industry.

Elaborate



Apart from some common hazards of manufacturing industries, Tyre industry has some exclusive hazard, which are associated with use of Rubber, chemical and heat.

Explain Tyre Industry hazard in detail –

- 1- Manual Handling – Around 40% of total accident in Tyre or rubber industry is reported due this cause.
- 2- Accident by moving or falling object – this is the other big hazard in Tyre industry. Tyre is a big and heavy part and it is difficult to manage its weight manually. During transportation if Tyres are not secured properly then there is chance that tyre may fall from open moving vehicle or can fall on person who open the door of closed transportation vehicle. Special safety arrangement should be made to load tyres in side vehicles.
- 3- Slips and falling – This is also a bigger reason for many accidents. Floor of shop should be free from any oil or slippery material. Also aisles should be clutter free so that movement of persons and trolleys remains smooth.
- 4- Rubber and Dust Fumes – Due to exposure to beta-naphthylamine, workers are prone to get cancer. Prolonged exposure to this chemical leads to bladder cancer. The employer should use a effective way of ventilation and prolonged exposure should be avoided.



Fig. 8.1.2. Hazard of manual handling



Fig. 8.1.4. Slip or fall



Fig. 8.1.3. Accident by moving / falling object

Other hazards can be classified in to 3 categories –

- 1- Chemical hazard.
- 2- Physical hazard.
- 3- Ergonomic hazard.

8.1.2.1: Chemical Hazards

Explain

There are many chemicals that are used in Tyre industry. Prolonged exposure to these chemicals without using effective PPEs can affect human body adversely. There are 3 ways of affecting by chemicals.

A- Inhalation: If any chemical is in Vapour of gaseous form, then a worker can inhale it while working near to that chemical.

B- Ingestion: It is possible by accidentally swallowing the chemical through eating or drinking

C- Absorption: There are some chemicals those get absorbed in body through contact with skin or eyes.

8.1.2.2: Physical Hazards

Explain

Physical hazards are types of energy that may be hazardous to workers. Following are example of physical hazards –



Fig. 8.1.5. Heat generated in tyre industry

Noise: When you are exposed to excessive noise levels, the first stage is temporary hearing loss. Several factors influence the noise levels to which workers are exposed:

- Type of equipment being operated Condition/maintenance of the equipment
- Other equipment running at the same time
- Enclosed or partially enclosed spaces

Vibration: Whole-body vibration can occur from operating large mobile equipment, such as drillers, air hammers, pile drivers, tractors, graders, excavators, earth-moving equipment, and other large machinery. Hand-arm vibration can result from using hand-held power tools, such as pneumatic drills and hammers, and disc grinders.

Temperature Extremes: A change in body temperature due to extreme work environmental conditions can lead to stress or illness from heat or cold. If not treated in time, both heat and cold stress/illness can develop into life-threatening situations. Heat illnesses causes: Heavy work in high temperatures can cause muscle cramps, dehydration, sudden collapse, and unconsciousness.

- a- Heat rash
- b- Fainting
- c- Heat cramps
- d- Heat exhaustion
- e- Heat stroke
- f- Wearing resistant protective clothing when doing heavy work.

Cold illnesses and injuries: Cold temperatures can lead to fatigue, irregular breathing, confusion, and loss of consciousness (hypothermia).

- a-Frostnip
- b- Immersion injury (trench foot)
- c- Frostbite
- d- Hypothermia

8.1.2.3: Ergonomic Hazards

Explain

Ergonomic hazards can cause painful and disabling injuries to joints and muscles. These can occur from:



Fig. 8.1.6. Ergonomic hazard

- Heavy, frequent, or awkward lifting, Repetitive tasks, Awkward grips, postures, Using excessive force, Over-exertion, Using wrong tools for the job or using tools improperly, Using improperly maintained tools, Hand-intensive work,

Explain Correct Lifting position -

- Chin tucked in, Comfortably straight back, Leaning slightly forward, Arms close to body, Secure grip, Bent knees, Proper foot position:

8.1.3: General Hazards in Tyre Industry

Explain

Slip and fall - Slip and Fall accidents can occur anywhere on the factory floor. Because water, chemicals, solvents and liquids are commonly used in factories, fatigue mats and non-slip floor surfaces should be provided. Deposits of oil and grease can create hazardous conditions on any surface.

Heavy Weight Lifting - Lifting heavy objects repeatedly causes a variety of serious health conditions and permanent disabilities. Whenever manual handling is required, a worker's health could be put in danger. Handling accidents can also occur during deliveries when loads fall on workers or cause muscle strain and back injuries. Falling shelves and unstable goods in warehouses can cause head trauma and crush injuries. All hydraulic systems, pallet jacks, hand trucks and lifting equipment must be properly maintained.

Injury by defective tool - Defective, faulty and improperly maintained equipment can make any job even more dangerous. Accidents often happen during operation and regular maintenance procedures. Disabling automatic shut-off buttons and critical safety components can cause deadly injuries. Workers and mechanics might also sustain injuries when attempting to complete necessary repairs.

Injury by Dangerous chemical - Dangerous chemicals and hazardous substances are found in many factories. Anytime workers are exposed to poisonous vapors and chemicals, their health can be impaired.

Injury by Fire / Explosion - Fires, explosions and electrical accidents occur in many factories where flammable substances and heat-generating equipment are found. Can cause a catastrophic fire and injure many workers.

Injury due to lack of training - Failing to properly train and supervise workers is a leading cause of factory accidents. Floor managers, supervisors and safety personnel are responsible for creating and maintaining a safe work environment. Factory owners and supervisors are also responsible for establishing and enforcing safety procedures and training requirements that prevent accidents. A small investment in enhanced safety tools and training can prevent expenses related to accidents and on-the-job injuries.

8.1.4: Hazards while Manufacturing Rubber

Explain

- Dust arises in rubber making where ingredients are handled, weighed, added to or mixed with uncured natural rubber or synthetic elastomers.
- Rubber process dust can cause cancer and dermatitis.
- Keep inhalation of rubber process dust as low as possible below the workplace exposure limit of 6 mg/m³ (8-hour time-weighted average) or as mentioned in the SOP.
- Rubber process dust does not include dust from cured rubber, e.g. from buffing or trimming.
- Fire and explosion hazards
- Many of the rubber compounding additives are fire sensitive, particularly:
- Sulphur and organic peroxides (used as curing agents);

- Azodicarbonamide (used as a blowing agent in some open celled rubber/lattices). Particular care is required in storage areas to make sure incompatible materials, such as carbon black and sulphur, are adequately segregated. There have been incidences of dust explosions in powder handling areas. Many rubber compounding additives such as azodicarbonamide, calcium and zinc stearates, are known to be highly explosive when in a finely divided state. Design dust extraction and collection systems for use with potentially explosive dusts. Good housekeeping will minimize the risk of secondary dust explosions.

8.1.5: Hazards and Safety precaution while doing Tyre moulding

Explain

Cleanliness of the machines and work areas is important for the safety of the curing process as well as operating personal.

Curing personal should wear safety shoes, safety glasses, caps and gloves.

Relevant regulatory environmental help and safety instruction must be displayed in the work place. Schedule for cleaning of machines and the shop floor along with the names of person responsible must be prepared and displayed. Display board mentioning protective equipment to be used “when and how” should be fixed at the noticeable place in the department or section. Board mentioning details of potential hazard and their preventive action should be displayed.



Fig. 8.1.7. Tyre moulding

Demonstrate

- Demonstrate different safety and health hazards during Tyre Moulding.
- Demonstrate implications of Safety and health hazards on Tyre Moulding operator.

Activity-1

- Conduct 'Identify Hazards in Tyre Manufacturing Industry'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Identify Hazards in Tyre Manufacturing Industry'
- One group of Students will have 30 minutes to prepare presentation on 'Identify Hazards in Tyre Manufacturing Industry'. 30 minutes for giving presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Identify Hazards in Tyre Manufacturing Industry'	4 Hours	Tyre Manufacturing Industry Work Place, Flip Charts, Marker

UNIT 8.2: Health & Safety requirement for Tyre Industry

Unit Objectives

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

1. Explain the health and safety requirements for Tyre Industry
2. Discuss health and safety procedure of organisation

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

8.2.1: Health & Safety requirement of Tyre Industry

Explain

Every industry has some health and safety hazards while carrying out its operations. Organisations cannot avoid these hazards, but can eliminate the risk of accident or their affect on human health by taking some precautions. Different organisations have different type of hazard, which are associated with the nature of process they carry out. Some of them are below –

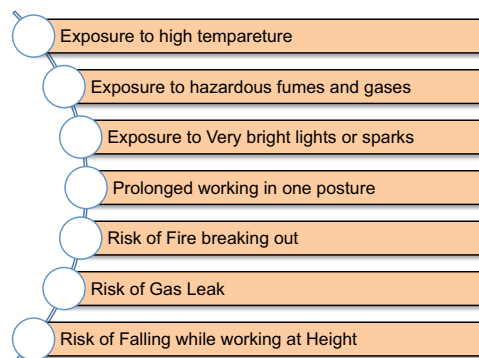


Fig. 8.2.1. Health and safety requirement of industry

8.2.2: Health and Safety hazards of Tyre Industry

Explain



Due to excessive use of various chemicals and very high temperature processing of tyre, Tyre industry has its own very high health and safety hazards.

Although natural rubber used in tyre manufacturing poses very less affect on human health but other ingredients, such as Carbon black and some of special chemicals used in tyre making, poses great health hazard if exposed without PPEs for prolonged duration –

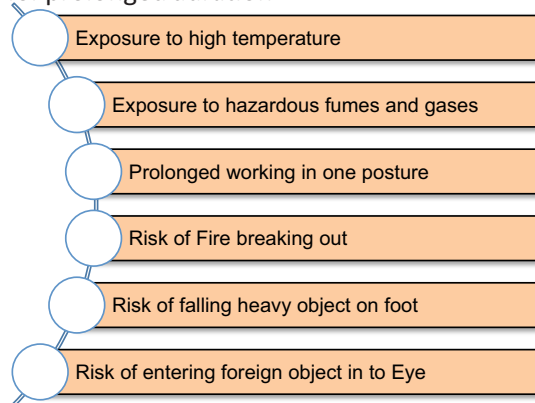


Fig. 8.2.2. Health and safety requirement of tyre industry

8.2.3: Health and Safety hazards of Tyre Industry

Explain



To mitigate the risk of health and safety related issue every organisation prepares a procedure containing details of health and safety issues and actions to be taken. All the tyre-manufacturing organisations also follow this and have their own health & safety procedures.

As we know ingredient for Tyre is rubber and other chemical, which are substantially hazardous for human if exposed for longer duration without proper personal protective equipment. Main purpose of this document is to reduce risk of employees of organisation while working.

This document has guidelines on 'how-to' of all health and safety related issue. Apart from minute details it has –

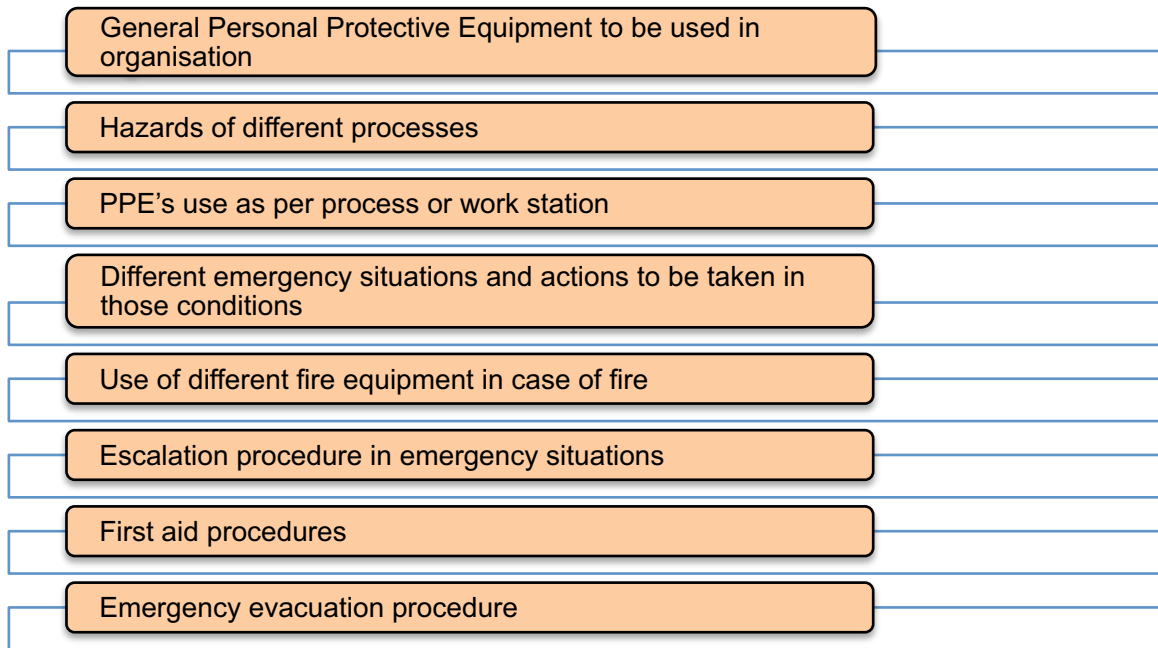


Fig. 8.2.3. Details of organisation's safety procedure

Demonstrate

- Demonstrate how to use Safety Procedure during Tyre Moulding.
- Demonstrate implications of not following Safety procedure.

Activity-1

- Conduct 'Identify Safety Risks in Tyre Moulding'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Identify Safety Risks in Tyre Moulding'.
- One group of Students will have 30 minutes to prepare presentation on 'Identify Safety Risks in Tyre Moulding'. 30 minutes for giving presentation.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
Identify Safety Risks in Tyre Moulding'	4 Hours	Tyre Moulding Machine, Flip Charts, Marker

UNIT 8.3: Tyre Moulding Safety Equipment

Unit Objectives

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

1. Explain what is PPEs
2. Discuss requirement of PPE
3. Identify different types of PPEs used in Rubber and Tyre Industry
4. Describe the purpose of various PPEs used in Rubber and Tyre Industry
5. Demonstrate the Use of different PPEs.

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

8.3.1: What is PPE – Personal Protective Equipment?

Ask

- Ask students what is PPE.
- Ask students what is the purpose of PPE.

Explain

Personal Protective Equipment or PPE, as it is commonly called, is wearable equipment, which saves us from potential harm of various substance and situations. Such as – Mask, gloves etc



Fig. 8.3.1. Type of personal protective equipment

8.3.2: Need of PPE

Explain



To ensure the greatest possible protection for employees in the workplace, the cooperative efforts of both employers and employees will help in establishing and maintaining a safe and healthful work environment.

In general, employees should:

- Properly wear PPE,
- Attend training sessions on PPE,
- Care for, clean and maintain PPE, and
- Inform a supervisor of the need to repair or replace PPE.

There are many type of PPEs. PPEs used in rubber or Tyre industry are following –

8.3.2.1: Respiratory Protection (RPE)

Explain



- RPE should not be needed if the controls work properly.
- RPE is usually needed for maintenance and cleaning.
- Provide RPE with an assigned protection factor (APF) of at least 10.
- Disposable RPE is acceptable - throw it away at the end of the task.
- Otherwise, replace RPE filters as recommended by the supplier.
- Make sure all RPE is properly fit-tested - get advice from your supplier.
- Keep RPE clean. Store it away from dust and other contaminants.



Fig. 8.3.2. Mask

8.3.2.2: Eye and Face Protection

Explain

Employees can be exposed to a large number of hazards that pose danger to their eyes and face. Employers to ensure that employees have appropriate eye or face protection if they are exposed to front and/or side impact hazards from:

- Flying objects and particles;
- Molten metal;
- Liquid chemicals;
- Acids or caustic liquids;
- Chemical gases or vapors;
- Potentially infected material;
- Glare;
- Injurious radiation;
- Electrical flash



Fig. 8.3.3. Safety goggles

8.3.2.3: Head Protection

Explain

A head injury can impair an employee for life or can be fatal. Protecting employees from potential head injuries by wearing a safety helmet or hardhat is one of the easiest ways to protect an employee's head from injury. Employers must ensure that their employees wear head protection if they are exposed to any of the following:

- Falling or flying objects;
- Other harmful contacts or exposures;
- Risk of injury from electrical shock;
- Chemicals;
- Temperature extremes;
- Hair entanglement



Fig. 8.3.4. Safety helmet

8.3.2.4: Foot and Leg Protection

Explain



Employees, who face possible foot or leg injuries from falling or rolling objects or from crushing or penetrating materials, should wear protective footwear. Also, employees whose work involves exposure to hot substances, corrosive, or poisonous materials must have protective gear to cover exposed body parts, including legs and feet. If an employee's feet may be exposed to electrical hazards, non-conductive footwear should be worn. On the other hand, workplace exposure to static electricity may necessitate the use of conductive footwear.

Safety shoes have impact-resistant toes and heat-resistant soles that protect the feet against hot work surfaces common in roofing, paving and hot metal industries. The metal insoles of some safety shoes protect against puncture. Safety shoes may also be designed to be electrically conductive to prevent buildup of static electricity or nonconductive to protect workers from workplace electrical hazards.



Fig. 8.3.5. Safety shoes

8.3.2.5: Hand and Arm Protection

Explain



Where potential injury to hands and arms cannot be eliminated through engineering and work practice controls, employers must ensure that employees wear appropriate protection. Potential hazards include:

- Skin absorption of harmful substances (look for 'skin' warning on MSDS);
- Chemical or thermal burns;
- Electrical dangers; and
- Bruises, abrasions, cuts, puncture.



Fig. 8.3.6. Safety gloves

Demonstrate



- Demonstrate different types of PPEs to be used during Tyre Moulding.
- Demonstrate implications of not using PPE on Tyre moulding operator safety.

Activity-1

- Conduct 'Using PPE Activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on 'Using PPE Activity'
- One group of Students will be given one PPE out of Safety Goggle, Safety Shoes, Safety Gloves, Safety Hat, Mask, Earmuff. They will have 30 minutes to prepare presentation on 'Using PPE Activity'. 10 minutes for giving presentation and showing use of PPE.
- Students have to make and give presentation on 'Using PPE Activity'.

Activity	Time	Resources
'Using PPE Activity'	4 Hours	Safety Goggle, Safety Shoes, Safety Gloves, Safety Hat, Mask, Earmuff, Flip Charts, Marker

UNIT 8.4: Handling Fire and Other Emergencies

Unit Objectives

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

1. Define what is emergency
2. Describe various emergency situations in Industry
3. Describe common injuries in industry
4. Describe First Aid box and its constituents
5. Demonstrate how to handle Fire Emergencies
6. Demonstrate how to use a multi purpose Fire Extinguisher
7. Describe type and class of Fires
8. Describe suitable fire extinguisher as per fire type and class

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout
- First Aid Box, Fire Extinguisher

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

8.4.1: What is Emergency?

Ask

- Ask students what are the probable emergency situations in Tyre Industry.
- Ask students what are the implications of different Emergency situations.

Say

Emergency is a sudden or unexpected state of situation, which, if not tackled properly, will lead to loss of property, health or life. In cases where any mitigation is not possible, immediate evacuation is needed.

8.4.2: Emergency situation in Industry

Explain

There are various emergency situations in industry. Some of them are –

- 1- Accident Emergency
- 2- Electric shock Emergency
- 3- Medical Emergency
- 4- Natural Disaster Emergency – Flood, Earthquake, Tsunami, etc.
- 5- Fire Emergency

For first 3 emergencies we need to give first aid and immediately call Ambulance.

For Natural Disaster we should take shelter at safe place or follow company's emergency procedure.

For Fire Emergencies we will discuss in details. First we will understand about common Injuries in industries and their First Aid.

- When heavy objects such as barrels or tools might roll onto or fall on the employee's feet;
- Working with sharp objects such as nails or spikes that could pierce the soles or uppers of ordinary shoes;
- Exposure to molten metal that might splash on feet or legs
- Working on or around hot, wet or slippery surfaces; and
- Working when electrical hazards are present.

8.4.3: Common injuries in industry and how to deal with them

Explain

Abrasions and small cuts

Clean wound with soap and water. Apply antibiotic cream or Providone-iodine solution. Bandage and check dressing daily. See your doctor if there are signs of infection: increased redness, pus or red lines running from wound.



Fig. 8.4.1. Abrasions

Splinters

Remove with sharp, pointed tweezers. (They should be sharp enough to pick up a single hair.) If splinter is completely under the skin, expose splinter end with sewing needle doused in alcohol, and then remove with tweezers.



Fig. 8.4.2. Splinters

Lacerations

Clean wound with soap and water. Assess damage: If laceration is gaping or more than 1/4 in deep, seek emergency help. Otherwise, apply pressure to stop bleeding. Close wound with butterfly closures or adhesive strips. Check dressing daily.



Fig. 8.4.3. Lacerations

Fractures

Signs include extreme pain, swelling, bruising and an inability to move an adjacent joint. If you have any of these signs, you should be seen by a doctor to see whether you need an X-ray to evaluate for a fracture.



Fig. 8.4.4. Fractures

Amputations

Apply pressure to wounded area with clean bandage. Don't panic. Call for help. Raise wounded area above heart. Wrap amputated appendage in plastic bag. Keep appendage cool, not directly on ice. Sit in a chair near door, and await help.



Fig. 8.4.5. Amputation

Eye injuries

Look in mirror to assess eye. If foreign matter is embedded in the eye, go to the emergency room. If foreign matter is on the surface, flush it with water, or use eye wash and cup. For chemical splashes, flush with running water for five to 10 minutes. If it hurts too much to open your eye, go to the emergency room.



Fig. 8.4.6. Eye injury

Fumes and dust

If you feel dizzy or are having trouble breathing, leave the area, and go to fresh air. If normal breathing doesn't return in 15 minutes, go to the emergency room.



Fig. 8.4.7. Fumes and dust

8.4.4: Basic things in first aid box

Ask



- Ask students what first Aid
- Ask students what is the importance of First Aid

Explain



Top shelf: An asthma inhaler to counteract allergic reactions to fumes and to exotic-wood dust; sharp scissors for cutting bandages; adhesive tape for bandaging; an elastic bandage for securing dressings.

Middle shelf: Needles for splinter removal are stored in sterile alcohol; splinter tweezers, precise enough to pick up a single hair; 4-in. by 4-in. gauze pads for bandaging; assorted adhesive strips for small boo-boos; clean plastic bag for amputated parts; sterile rolled gauze for bandaging; butterfly bandages for drawing together larger lacerations.

Bottom shelf: Providone-iodine solution for killing germs; eyewash and cup; small mirror for eye inspections; instant ice packs to reduce swelling or for transporting amputated parts to the hospital; latex gloves for eye examinations.



Fig. 8.4.8. First aid box

8.4.5: Handling Fire Emergencies

Elaborate



Fires and explosions can severely damage or destroy premises or plant. Concentrations of small dust particles in the air can form a mixture that will explode if ignited. Often the explosions occur in dust extraction equipment and it is here that special precautions have to be taken. Secondary explosions can also follow the main explosion especially if dust deposits have accumulated in the workroom.

Rubber will also burn readily if ignited. There have been numerous fires started due to either badly maintained motors, electric sparks, or due to open wood burning stoves and cigarettes.

Make sure that all equipment is cleaned and that dust is not allowed to accumulate. Report any defects you see on equipment.

8.4.6: Types of Fire Extinguishers

Explain



Water Fire Extinguisher: It is used to extinguish the fire on wood, paper, cloth etc. It should not be used to extinguish the fire over electrical equipment.

Foam Extinguishers (Foam Extinguishers): It is used to extinguish the fire caused by kerosene, spirit, thinner etc. It also should not be used to extinguish the fire caused on electrical equipment.

Dry Powder Extinguishers (Dry Powder Extinguishers): This is used to extinguish – the fire evolving due to flammable liquids such as petrol, diesel etc.

Carbon di oxide Fire Extinguisher: Carbon dioxide evolves from this fire extinguisher and it can be used to extinguish fire over electric equipment, liquid gases or fluids.

These fire-extinguishing equipment should be installed at the proper place and it should be inspected, repaired and refilled regularly.





Extinguisher		Type of Fire				
Colour	Type	Solids (wood, paper, cloth, etc)	Flammable Liquids	Flammable Gasses	Electrical Equipment	Cooking Oils & Fats
	Water	✓ Yes	✗ No	✗ No	✗ No	✗ No
	Foam	✓ Yes	✓ Yes	✗ No	✗ No	✓ Yes
	Dry Powder	✓ Yes	✓ Yes	✓ Yes	✓ Yes	✗ No
	Carbon Dioxide (CO ₂)	✗ No	✓ Yes	✗ No	✓ Yes	✓ Yes

Fig. 8.4.9. Fire Extinguisher chart

8.4.7: Class and Type of Fires

Say 

Class	Type
A	Wood, Paper, Ordinary Combustibles Extinguish by Cooling and Quenching Using Water or Dry Chemicals
B	Gasoline, Oil, Grease, Other Greasy Liquids Extinguish by Smothering, Cooling or Heat Shielding using carbon Dioxide or Dry Chemicals
C	Electrical Equipment Fires Extinguish with Non-conducting Agents such as Carbon Dioxide or Dry Chemicals. DO NOT USE WATER.
D	Fires in Combustible Metals Extinguish by Using Specialized Extinguishing Powders

Class of Fire and Type of Extinguisher to be used

Class of Fire	Fire Extinguisher Type
B or C	Regular Dry Chemical
A, B, C, or D	Multi-Purpose Dry Chemical
D	Purple K Dry Chemical
B or C	KCL Dry Chemical
D	Dry Powder Special Compound
B or C	Carbon Dioxide (Dry)
B or C	Halogenated Agent (Gas)
A	Water
A	Water With Anti-Freeze
A or B	Water, Loaded Steam Style
B,	Foam

8.4.8: How to Respond in case of Fire

Explain



When fires do occur, the role of a person is to minimize the damage

- Extinguishing small fires
- Assisting in evacuations
- Notifying the local fire Brigade promptly
- Extinguishing fires

All fires consist of Heat plus Material plus Oxygen. Eliminating any one of these will eliminate a fire.

Different types of fires require different responses to eliminate them. There are three general classifications of fires. Each requires a different type of fire extinguisher.

Class "A" fires involve wood, cloth, vegetable matter, paper, etc. Extinguishers for Class A fires use either water or soda and acid foam. Class "B" fires involve combustible liquids such as oil, solvents, and grease. Extinguishers for Class B fires use CO₂ or foam. Class "C" fires are electrical. Extinguishers for Class C fires use CO₂, which is not a conductor of electricity. Your life can depend on using the correct extinguishing agent and using it correctly.

Elaborate



- 1- Do not use water on Types B, C or D fires.
- 2- If it is used on Type B fires it can spread the flames.
- 3- Water conducts electricity so if it is used on Type C fires it can cause major shock.
- 4- If it is used on Type D fires it will react violently causing an explosion.

8.4.9: How to operate a multipurpose fire extinguisher

Explain



Remember **PASS**

P- Pull the pin. In some models you may have to remove a locking pin.

A- Aim. Aim low. Direct the hose or cone to the base of the fire.

S-Squeeze. Squeeze the handle. This will release the contents of the extinguisher.

S-Sweep. Sweep from side to side. Don't lessen the pressure on the handle. Try to keep it constant.

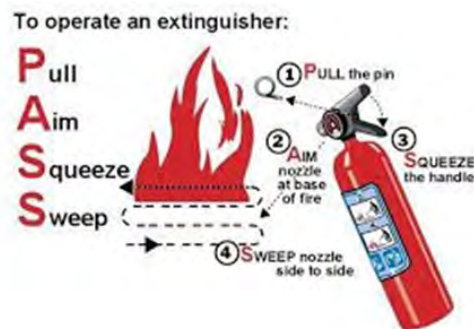


Fig. 8.4.10. Method of operating Fire extinguisher

It is important that you get fire extinguisher training before you have to use one. You don't want to waste valuable time trying to read directions or figure out how to remove a pin in an emergency situation. Other important information, like how far to stand away from a fire, when to move toward it, and how long the extinguisher contents last can only be understood by actually operating one. Make sure your employer and your Safety and Health Rep know that you need this training.

Demonstrate



- Demonstrate First Aid Box and medicines in it.
- Demonstrate First aid for different injuries.
- Demonstrate types of Fires and Fire Extinguisher for dosing each type of Fire.
- Demonstrate how to use a Fire Extinguisher.
- Demonstrate how to read evacuation plan and exit safely from workplace in case of any

Activity-1



- Conduct 'Using Fire Extinguisher activity'.
- Ask the students to make group of 5 students.
- Students have to make and give presentation on steps of 'Using Fire Extinguisher activity'.
- One group of Students will have 30 minutes to prepare presentation on 'Using Fire Extinguisher'. 30 minutes for giving presentation and 30 minutes for showing use of Fire Extinguisher.
- Appreciate efforts made by students and clarify doubts, if any raised, during activity.

Activity	Time	Resources
'Using Fire Extinguisher'	4 Hours	Fire Extinguisher, Flip Charts, Marker



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



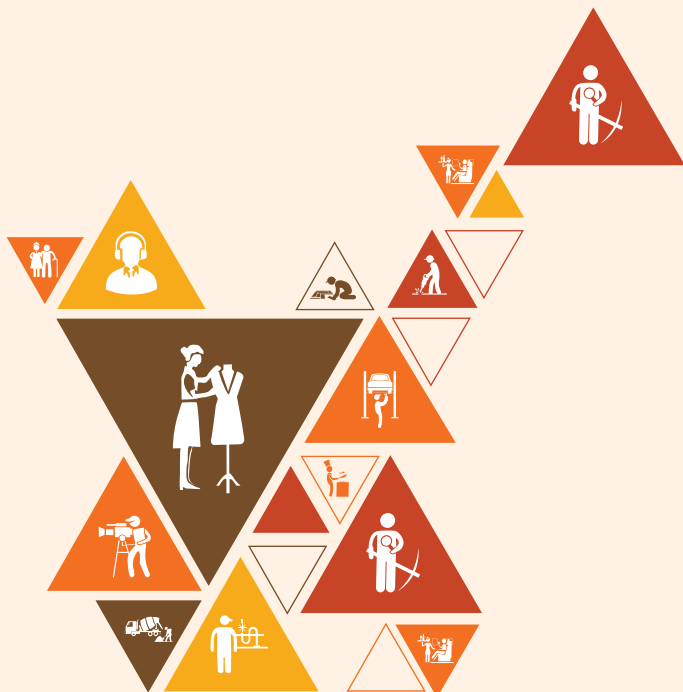
N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



9. Carry out Problem Identification and Escalation

Unit 9.1 – Problem Identification and Escalation to Supervisor



RSC/N5004

Key Learning Outcomes

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

1. Explain what is Problem
2. Describe how to identify Problem
3. Define Hierarchies
4. Discuss Hierarchy in tyre Industry
5. Explain how to escalate problem
6. Describe need for escalation

UNIT 9.1: Problem Identification and Escalating to Supervisor

Unit Objectives

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

1. Explain what is Problem
2. Describe how to identify Problem
3. Define Hierarchies
4. Discuss Hierarchy in tyre Industry
5. Explain how to escalate problem
6. Describe need for escalation

Resources to be Used

- White Board + Marker /Black Board + Chalk
- Duster
- Laptop + Projector / Computer + Projector / Flipcharts
- Participant Handbook / Copies of Handout

Do

- Greet the participants for the day.
- Give Summary of previous Session.
- Ask for any doubts in previous Session.
- Acknowledge for their doubt-raising, if any. Clear the doubts.
- Give details of today's session and what they are going to learn.
- Encourage them to share their thoughts and doubts now and during process of this course

9.1.1: What is Problem?

Ask

- Ask students what situations are called Problem.
- Ask students what are the implications if problem not solved.

Say

Any abnormal situation is called problem. Any work condition, which is not as per standard work procedure, can be defined as 'Problem'.



Fig. 9.1.1. Problem

9.1.2: Problem Identification

Explain



For identifying problem, the person should be fully aware of normal situation or work condition. The operator should be vigilant for observing sign of any problem during process. He / She should use following process and activities while looking for problem –

- 1- The machine is working fine as per specification.
- 2- All the parameters for machine are available and giving good result during production.
- 3- Raw material is available for process
- 4- No abnormality observed in Raw material used for process
- 5- Parts produced are ok as per specification
- 6- Space is available for keeping produced parts
- 7- There is no fire hazard observed during work



Fig. 9.1.2. Identify problem

9.1.3: Hierarchy

Explain



Hierarchy is a reporting structure. It is a framework designed to divide, organize, and coordinate the different activities of an organisation. We can consider reporting structure as a group of people, which have been asked to coordinate with each other through some ground rules to accomplish organisational goals and objectives as shown in following figure:

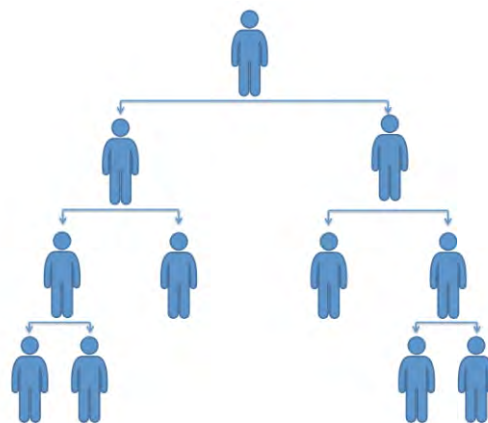


Fig. 9.1.3. Hierarchy

9.1.4: Hierarchy in Tyre Industry

Explain

Every organisation has hierarchy matrix, which decides reporting structure. It helps in smooth flow of information and maintains order in organisation. Without hierarchy, it is very difficult to manage organisation. Example of a Typical Tyre manufacturing organisation hierarchy is below –

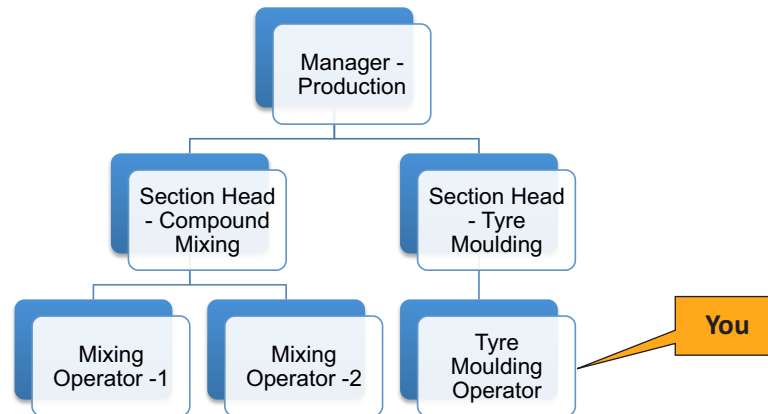


Fig. 9.1.4. Tyre moulding section hierarchy

9.1.5: Escalation of Problem

Explain

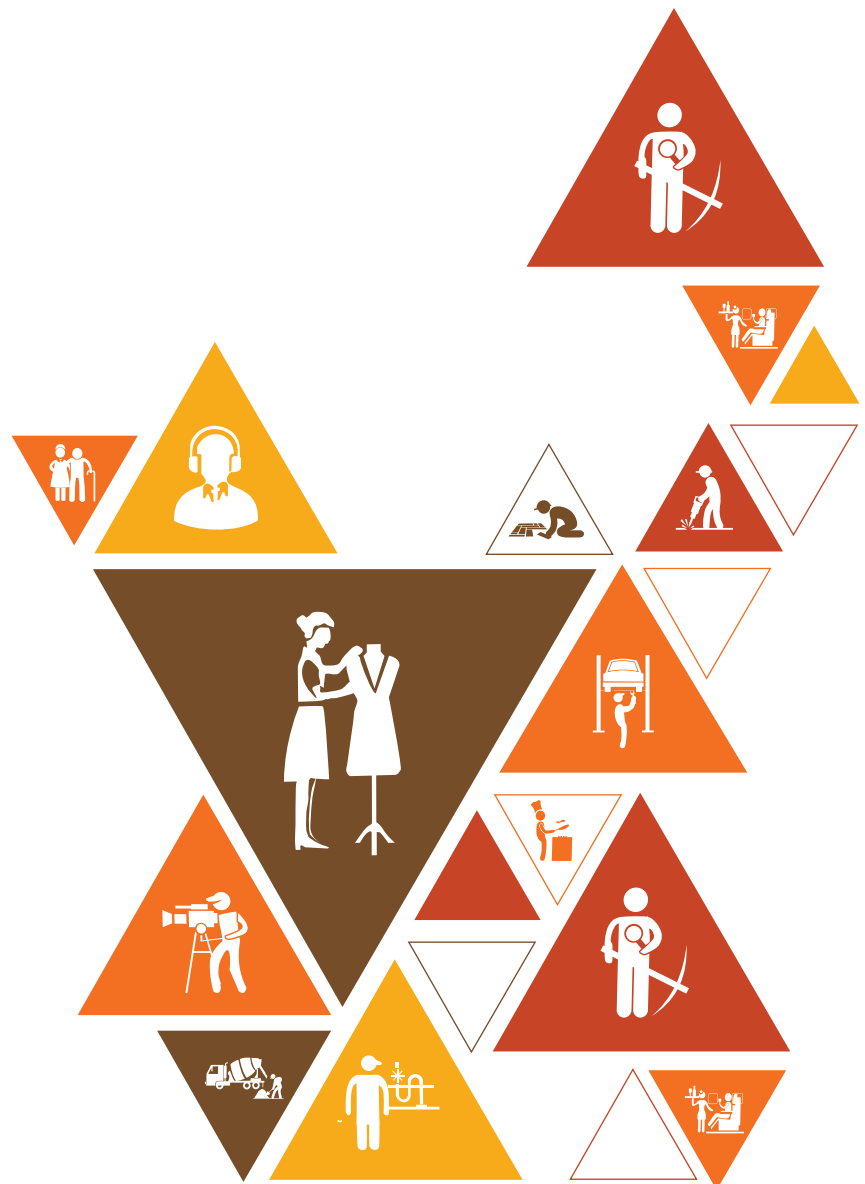
All the problems should be dealt as per procedure defined. If you think you cannot deal with problem appropriately or there is no procedure defined for dealing with the problem then it should immediately be escalated to your Supervisor for further action. It should be ensured that all such problem should be escalated without any delay. Any delay in escalation may worsen the problem. The escalation can be in any form –

- 1- Formal – written
- 2- Informal – Verbal / Telephonic

9.1.6: Why Escalation?

Explain

Although all employees should do their job as per procedure and work instruction for their particular job role and avoid any conflict or deviation from the procedure, but due to complexity of work there are various matter in organisation, which an employee need to bring in notice of his/ her superior. Due to position and experience superior is in better position of taking decision. If he is not able to take decision then he / she will take this issue to next level up and based on the issue, decision shall be taken at appropriate level.





Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



10. Employability & Entrepreneurship Skills

Unit 10.1 – Personal Strengths & Value Systems

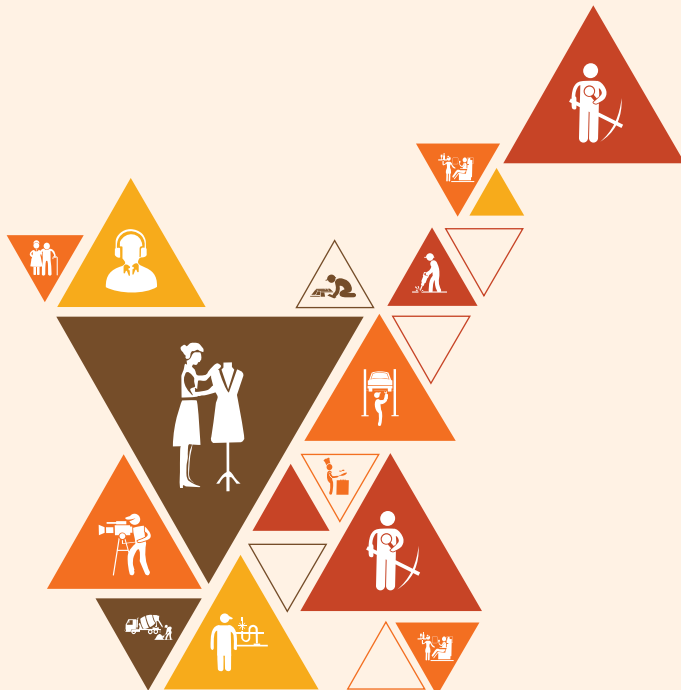
Unit 10.2 – Digital Literacy: A Recap

Unit 10.3 – Money Matters

Unit 10.4 – Preparing for Employment & Self Employment

Unit 10.5 – Understanding Entrepreneurship

Unit 10.6 – Preparing to be an Entrepreneur



RSC/N5013

Introduction: Employability and Entrepreneurship Skills

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

Ice breaker

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

Five of Anything Ice Breaker Steps:

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

Expectation Mapping

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

Defining Objectives

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

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

In order to effectively facilitate this workshop:

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

General instructions for role playing:

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

Unit 10.1: Personal Strengths & Value Systems

Key Learning Outcomes



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

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

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

Unit Objectives

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

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

Ask

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

Say

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

Role Play

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

Summarize

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

Say 

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

Activity 

- Health Standard Checklist from the Participant Handbook.

Ask 

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

Say 

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

Do 

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

Summarize 

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

Ask **Discuss:**

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

Say 

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

Activity 

- Health Standard Checklist: Hygiene

Say

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

Do

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

Ask

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

Summarize

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

Ask

- What is a habit?

Say

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

Summarize

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

10.1.2: Safety

Unit Objectives

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

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

Resources to be Used

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

Say

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

Team Activity

Safety Hazards

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

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

Ask

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

Say

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

Do

- Divide the class into five to six groups of four participants each.
- Put the format on the board for the activity.
- Give blank papers and pens to each group.
- The 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 time.
- Tell the group to wind up the discussion quickly if they go beyond the given time limit.

Ask

De-briefing

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

Summarize

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

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

Unit Objectives

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

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

Resources to be Used

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

Activity

- This is a paper pencil activity.

What are the three sentences that describe you the best?
--

What do you need to live happily?

What are your strengths and weaknesses?

Do

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

Say

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

Team Activity

Tower building

- Each group which will create tower using the old newspapers.

Do 

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

Ask 

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

Say 

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

Ask 

- Is your attitude positive or negative?

Say 

- Let me tell you a story :

It's Little Things that Make a Big Difference.

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

Ask 

- What did you learn from this story?

Activity **What Motivates You?**

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

Do 

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

Say



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

Summarize



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

10.1.4: Honesty & Work Ethics

Unit Objectives

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

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

Resources to be Used

- Participant Handbook

Ask

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

Say

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

Do

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

Team Activity

Case Study Analysis

Scenario 1

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

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

Scenario 2

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

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

Scenario 3

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

Scenario 4

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

Say

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

Do 

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

Summarize 

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

10.1.5: Creativity and Innovation

Unit Objectives

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

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

Resources to be Used

- Participant Handbook
- Chart papers
- Marker pens

Ask

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

Say

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

A.P.J. Abdul Kalam

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

Water filter/purifier at source

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

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

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

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

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

Solar seeder

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

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

Looms for physically challenged

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

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

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

Ask 

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

Say 

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

Team Activity 

- This is a group activity.

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

Activity De-brief

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

Do 

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

Summarize



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

Notes for Facilitation



- Source for stories on innovations:

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

10.1.6: Time Management

Unit Objectives

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

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

Resources to be Used

- Participant Handbook

Ask

Does this sound like you?

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

Example

- Let's look at these two examples:

Example 1:

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

Example 2:

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

Ask

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

Activity

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

Say

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

Ask

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

Say

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

Activity

Effective Time Management

- This activity has two parts:

PART 1 TO-DO LIST

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

PART 2 URGENT-IMPORTANT GRID

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

- **Category 2: Not Urgent/Important**

- This is where you want to spend most of your time.
- This category allows you to work on something important and have the time to do it properly.
- This will help you produce high quality work in an efficient manner.
- The tasks in this category are probably the most neglected ones, but also the most crucial ones for success.
- The tasks in this category can include strategic thinking, deciding on goals or general direction and planning – all vital parts of running a successful business.

- **Category 3: Urgent/Not Important**

- This is where you are busy but not productive. These tasks are often mistaken to be important, when they're most often busywork.
- Urgent but not important tasks are things that prevent you from achieving your goals.
- However, some may be activities that other people want you to do.

- **Category 4: Not Important and Not Urgent**

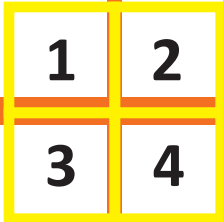
- This category doesn't really include tasks, but rather habits that provide comfort, and a refuge from being disciplined and rigorous with your time management.
- Some may be activities that other people want you to do.
- These might include unplanned leisure activities as well.

TO- DO list format

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

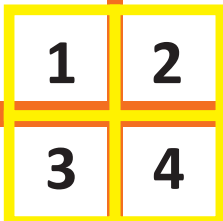
URGENT-IMPORTANT GRID

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



URGENT/ IMPORTANT GRID format

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



Do

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

Say

Activity De-brief:

How can we balance tasks between the four categories?

How to manage time through this grid?

- **Category 1: Urgent/Important**
 - ♦ Try to keep 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**
 - ♦ Plan these tasks carefully and efficiently as they are most crucial ones for success.
 - ♦ If necessary, also plan where you will do these tasks, so that you're free from interruptions.
 - ♦ Include strategic thinking, deciding on goals or general direction and planning in your planning process.
- **Category 3: Urgent/Not Important**
 - ♦ Ask yourself whether you can reschedule or delegate them.
 - ♦ A common source of such activities is other people. Sometimes it's appropriate to say "no" to people politely, or to encourage them to solve the problem themselves.
- **Category 4: Not Important and Not Urgent**
 - ♦ You also want to minimize the tasks that you have in this category.
 - ♦ These activities are just a distraction – avoid them if possible.
 - ♦ You can simply ignore or cancel many of them.
 - ♦ Politely say "no" to work assigned by others, if you can, and explain why you cannot do it.
 - ♦ Schedule your leisure activities carefully so that they don't have an impact on other important tasks.
- Discuss the traits of effective time managers and effective time management techniques as given in the Participant Handbook.

Summarize

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

Notes for Facilitation

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

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

10.1.7: Anger Management

Unit Objectives

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

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

Resources to be Used

- Participant Handbook

Ask

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

Say

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

Do

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

Activity

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

Ask

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

Say

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

Do

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

Activity

Trigger points and Anger Management Techniques Activity

Anger Triggers

List of triggers that make you angry:
Someone says you did something wrong.
You want something you can't have now.
You get caught doing something you shouldn't have been doing.
You are accused of doing something you didn't do.
You are told that you can't do something.
Someone doesn't agree with you.
Someone doesn't do what you tell him to do.
Someone unexpected happens that messes up your schedule.

Result of your anger:

--

Write the techniques that you use to manage your anger:

Anger Management Techniques

Say

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

Do

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

Ask

De-brief questions:

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

Summarize

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

Notes for Facilitation

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

10.1.8: Stress Management: What is stress?

Unit Objectives

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

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

Resources to be Used

- Participant Handbook

Ask

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

Say

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

Ask

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

Say

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

Do

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

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

Team Activity

Case Study Analysis

Scenario 1

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

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

Scenario 2

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

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

Scenario 3

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

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

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

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

Scenario 4

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

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

Ask**De-brief questions:**

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

Say

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

Do

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

Say

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

De-brief:**Scenario 1**

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

Scenario 2

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

Scenario 3

Sometimes, stress is caused due to external factors instead of internal ones. In this case, the stress was unavoidable because we have no control over this customer care system. Every time, you will get in touch with a new executive and will have to explain all over again. This might cause stress but despite being frustrated and angry there is little that we can do about it. All 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.

Scenario 4

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

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

Do 

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

Scenario 5

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

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

Say **De-brief:**

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

Summarize

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

Notes for Facilitation

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

Notes

Unit 10.2: Digital Literacy: A Recap

Key Learning Outcomes



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

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

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

Unit Objectives

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

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

Resources to be Used

- Participant Handbook
- Computer Systems with the required applications

Say

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

Explain

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

Ask

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

Say

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

Summarize

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

Practical

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

Do

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

10.2.2: MS Office and Email: About MS Office

Unit Objectives

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

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

Resources to be Used

- Participant Handbook
- Computer Systems with MS Office

Ask

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

Say

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

Explain

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

Ask

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

Say

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

Do 

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

Demonstrate 

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

Practical 

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

Summarize 

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

10.2.3: E-Commerce

Unit Objectives

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

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

Resources to be Used

- Computer System with internet connection
- Participant Handbook

Ask

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

Say

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

Ask

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

Say

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

Team Activity

E-commerce examples

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

Say

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

Do

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

Say

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

Explain

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

Say

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

Role Play

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

Ask 

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

Say 

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

Do 

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

Ask 

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

Say 

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

Summarize 

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

Unit 10.3: Money Matters

Key Learning Outcomes



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

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

10.3.1: Personal Finance – Why to Save?

Unit Objectives

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

- Discuss the importance of saving money
- Discuss the benefits of saving money

Resources to be Used

- Participant Handbook

Ask

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

Example

- Let's look at these two examples:

Example 1:

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

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

Example 2:

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

Ask

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

Say

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

Ask

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

Say

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

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

Ask

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

Say

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

Team Activity

Personal Finance- Why to save

- This activity has two parts:

PART 1

WAYS TO SAVE MONEY

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

PART 2

HOW WILL YOU USE THE MONEY

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

Do

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

Activity De-brief

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

Say



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

Summarize



You can summarize the session by discussing:

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

10.3.2: Types of Bank Accounts, Opening a Bank Account

Unit Objectives

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

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

Resources to be Used

- Account opening sample forms
- Participant Handbook

Ask

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

Example

- Let's look at the given example:

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

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

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

Ask

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

Say

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

Ask

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

Say

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

Team Activity

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

Activity De-brief

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

Say

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

Ask

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

Say

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

Team Activity

Opening a Bank Account

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

PART 1

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 needs for filling the form.
- Now fill in the form.

Activity De-brief

How did you design the form?

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

Do

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

Summarize

Note:

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

Sample Bank Account Opening form.

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

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

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

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

Declaration:

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

Place:

Date:

Signature / LTI of Applicant

Nomination:

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

Place:

Date:

Signature / LTI of Applicant

Witness(es)*

1. _____

2. _____

*Witness is requires only for thumb impression and not for signature

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

Unit Objectives

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

- Differentiate between fixed and variable costs

Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

Ask

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

Say

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

Team Activity

Identify the type of cost

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

Do

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

Summarize

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

Notes for Facilitation

- Answers for the activity - Identify the type of cost
- | | |
|--|------------|
| 1. Rent | (Fixed) |
| 2. Telephone bill | (Fixed) |
| 3. Electricity bill | (Fixed) |
| 4. Machinery | (Fixed) |
| 5. Insurance | (Fixed) |
| 6. Office supplies/Raw materials | (Variable) |
| 7. Employee salaries | (Fixed) |
| 8. Commission percentage given to sales person for every unit sold | (Variable) |
| 9. Credit card fees | (Variable) |
| 10. Vendor bills | (Variable) |

10.3.4: Investments, Insurance and Taxes

Unit Objectives

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

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

Resources to be Used

- Participant Handbook

Ask

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

Example

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

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

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

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

Say

- Discuss the Investment, Insurance and Taxes as given in the Participant Handbook.

Ask

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

Say

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

Say

- We will have a quiz today.

Team Activity

- The activity is a quiz.

Do

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

Summarize

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

Notes for Facilitation

Questions for the quiz

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

12. What are the two benefits of a Whole Life Insurance?

It offers the dual benefit of investment and insurance

13. Which policy covers loss or damage of goods during transit?

Marine Insurance

14. After what duration is the income tax levied?

One financial year

15. What is long term capital gain tax?

It is the tax payable for investments held for more than 36 months.

16. Name the tax that is added while buying shares?

Securities Transaction Tax

17. What is the source of corporate tax?

The revenue earned by a company.

18. Name the tax whose amount is decided by the state?

VAT or Value Added Tax

19. You have bought a T.V. What tax will you pay?

Sales Tax

20. What is the difference between custom duty and OCTROI?

Custom duty is the charges payable when importing or purchasing goods from another country. OCTROI is levied on goods that cross borders within India.

10.3.5: Online Banking, NEFT, RTGS, etc.

Unit Objectives

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

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

Resources to be Used

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

Ask

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

Say

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

Do

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

Say



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

Do



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

Summarize



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

Notes



Unit 10.4: Preparing for Employment & Self Employment

Key Learning Outcomes

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

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

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

Unit Objectives

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

- Discuss the steps to follow to prepare for an interview

Resources to be Used

- Participant Handbook

Ask

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

Say

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

Activity 1

- Introducing Yourself

Do

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

Ask

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

Say

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

Do

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

Activity 2

- Planning the right attire

Do

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

Summarize

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

10.4.2: Preparing an Effective Resume: How to Create an Effective R

Unit Objectives

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

- Discuss the steps to create an effective Resume

Resources to be Used

- Participant Handbook
- Blank papers
- Pens

Ask

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

Say

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

Do

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

Say

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

Activity

Case Study Analysis

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

Candidate Details

Nipesh Singla was born on 20th April, 1988 in Chandigarh, India. He currently resides at 1XX7, Sector XX D, Chandigarh –160018. His mobile number is 988XXXXX01, and e-mail address is nxxxxxxxla@gmail.com. Nipesh attended middle and senior school at Government Boys Senior Secondary School, Sector 15, Chandigarh. He has been a very talented boy since school. He was fond of painting and watching old Hindi movies. As part of a school charity program, he volunteered at the children's hospital during his senior years.

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

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

Job Posting

* Do you see yourself as a HOUSEKEEPING SUPERVISOR?

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

THE LOCATION:

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

Salary: Negotiable

Industry: Travel / Hotels / Restaurants / Airlines / Railways

Functional Area: Hotels, Restaurants

Role Category: Housekeeping

Role: Housekeeping Executive/Assistant.

Desired Candidate Profile

Friendly, pleasant personality, Service - oriented.

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

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

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

Education-

UG: Any Graduate/ Diploma holder

PG: Post Graduation Not Required

Say

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

Do

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

Summarize

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

Notes for Facilitation

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

Nipesh Singla

#1XX7, Sector XX-D

Chandigarh-160018

Mobile No: 91-988XXXXX01

E-mail: nxxxxxxxxla@gmail.com

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

Professional strengths:

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

- Detail oriented, flexible, and adaptable
- Knowledge of Microsoft Word, Excel, Access and PowerPoint

Educational background:

- Diploma in Hotel Management and Catering, Westwood School of Hotel Management, Zirakpur
- High School, Government Boys Senior Secondary School, Sector 15, Chandigarh

Professional internships:

- Housekeeping Intern, XYZ Group of Hotels, New Delhi (June 2010 – August 2010)
 - ♦ Responsible for cleanliness and maintenance of one floor in the hotel.
 - ♦ Got opportunities to make housekeeping arrangements for corporate meetings.

Volunteer Work:

- Student volunteer at children's hospital in Chandigarh.

Nipesh Singla

10.4.3: Interview FAQs

Unit Objectives

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

- Discuss the most frequently asked interview questions
- Discuss how to answer the most frequently asked interview questions

Resources to be Used

- Participant Handbook

Say

- Tell the participants you will provide them with interview situation and questions and they have to try to answer them.
- Tell them you will also explain the different ways to approach these questions.

Do

- Divide the class in pairs and ask the participants to perform a role play.
- One partner will play the role of the interviewer while the other will play the role of the interviewee.
- Tell them the interviewer can start the interview by asking the interviewee to introduce himself/herself.
- Call all the pairs one by one in front of the class to enact the role play.
- Follow the same pattern for all other situations.
- Time allotted for each situation is 8-10 minutes.
- Congratulate each participant for giving their input.
- Ask the class to applaud each time a team has completed their role play.
- Keep a check on time.

Role Play

Conduct a role play for the situation given.

Situation 1

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Then, the interviewer will bluntly ask the following questions:
 - ♦ How do you explain this huge time gap in your resume?
 - ♦ What is the reason for this?
 - ♦ Weren't you looking for a job or is it that no one selected you?

Say

De-brief:

- When you put information on your resume, you should be prepared to answer any questions about it.
- Be present and focused on the questions being asked to you.
- One way of tackling the blunt questions is to tell the interviewer you did not come across an opportunity where you were sufficiently satisfied with both the remuneration offered as well as the profile. Therefore, you waited for the right opportunity to come along while looking for an ideal job.

Role Play

Conduct a role play for the situation given.

Role Play – Situation 2

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Then, at the end of the interview, ask the interviewee:
 - ♦ There are over 200 people who have applied for this job, some with excellent work experience. Why should I hire you?

Say

De-brief:

- There is nothing wrong with stating your strengths and achievements. However, do not come across as arrogant or too boastful.
- You need show the interviewee that you have unique skills or talents to contribute to the company. The interviewer needs to know how you stand apart from the rest of the crowd.
- Tell the interviewer you are looking forward to working with the company and that you are a hard-working individual.

Role Play

Conduct a role play for the situation given.

Role Play – Situation 3

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Then, lean forward, clasp your hands on the table and in a soft voice ask the interviewee:
 - ♦ Did you ever experience any neglect or disregard from your previous office? In other words, did you ever suffer because your office or team displayed favouritism?

Say

De-brief:

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

Role Play

Conduct a role play for the situation given.

Role Play – Situation 4

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Then very bluntly ask the interviewee:
 - ♦ How long do you plan to stay with this company if you are selected?
- After the candidate responds, ask sarcastically:
 - ♦ Do you seriously mean that?

Say

De-brief:

- Don't provide unreal and idealistic answers.
- Your answers should be honest yet diplomatic. In a situation like this, the interviewer does not expect you to provide a specific timeline.
- You can say something like, “I would like to stay with the company as long as I can contribute constructively and develop as an employee, within the organization, professionally and financially.”

Role Play

Conduct a role play for the situation given.

Role Play – Situation 5

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Ask him/her how important he/she thinks it is to be punctual in the corporate world.
- After he/she answers, look up sternly at the interviewee and in a crisp voice, say:
 - ♦ You were late for this interview by 10 minutes. That surely does not seem to be in line with what you just said?

Say

De-brief:

- Politely apologize for being late.
- You can add something such as, “I assure you this is not a habit”. All your future actions should be in line with this statement.
- Avoid giving any excuses.
- You might feel obligated to provide a justification for your tardiness, but the interviewer is not interested in that.
- Do not over apologize. Once this response is out of the way, turn your focus back to the interview.

Role Play

Conduct a role play for the situation given.

Role Play – Situation 6

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- After asking a few academic or job-related questions, ask the interviewee:
 - ♦ If you get this job, what salary package do you expect us to give you?

Say

De-brief:

- If there is no way for you to avoid this question, respond to the interviewer by providing a reasonable and well-thought out salary range.

Role Play

Conduct a role play for the situation given.

Role Play – Situation 7

- The interviewer will start by asking the interviewee a few generic questions such as:
 - ♦ What is your name?
 - ♦ Tell me something about yourself?
 - ♦ Can you tell me something about your family?
- Then, bringing the interview to a close, ask the interviewee:
 - ♦ Do you have any questions for me?

Say

De-brief:

- Ask relevant questions.
- Don't bombard the interviewer with questions.
- If you have questions about the result of the interview, you can limit your questions to 1 or 2. Keep them short and relevant like:
 - ♦ When will I be informed about the results of the interview?
 - ♦ What are the working hours?
 - ♦ Will the job require me to travel?

Explain

- Tell the participants to be prepared for answering different types of questions in an interview.
- Stay calm and focused, and take a moment to think about how you should respond. Always maintain a confident tone.
- Even if you don't intend to, your body language conveys your level of discomfort with a particular question. Try to keep your actions, tone, and gestures neutral.
- Maintain your composure while answering personal question.

Do

- Tell all the participants to form pairs again.
- Tell them to use the following list of frequently asked interview questions to conduct mock interviews.
- They will use all or some of these questions to conduct mock interviews with their partners.
- One partner will play the role of the interviewer while the other will play the role of the interviewee.
- After they are through asking and answering the questions, the roles will be reversed.
- The same list of questions will be used again.
- After each mock interview ask the interviewer to provide feedback and clear any doubts that may arise.
- Time allotted for each situation is 30-35 minutes.

Activity

Mock Interview Questions

Mock Interview Questions
Tell me something about your family.
What qualities would you look for in a Manager or a Supervisor?
Why did you apply for this job?
What do you know about this company?
How do you deal with criticism?
How do you plan to strike a good work-life balance?
Where do you see yourself five years from now?
Have you applied for jobs in other companies?
What kind of salary do you expect from this job?
Do you have any questions for me?

Summarize

- Close the discussion by discussing the questions in the both activities.
- Ask the participants what they have learned from this activity.
- Ask if they have any questions related to what they have talked about so far.

10.4.4: Work Readiness – Terms and Terminology

Unit Objectives

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

- Identify basic workplace terminology

Resources to be Used

- Participant Handbook
- Chart papers
- Blank sheets of paper
- Pens

Ask

- What do you understand by workplace terminology?
- Are offer letter and contract of employment the same?

Say

- Let's start this unit with an activity.

Team Activity

Workplace terminology

- This is a group activity conducted in three parts.

Part 1

Sheila received a call from the recruiter of MND Company. Before she is recruited by the company, think of the recruitment process she will have to go through. Start from the telephone call to signing her letter of acceptance. Write down all the words that come to your mind.

Activity De-brief

- Have the participants read out the words they have written
- Encourage all the participants to participate in the activity

Do

- Divide the class into small groups of 4 or 6.
- Instruct the participants that they will be doing a brainstorming activity.
- Give them one chart paper each. Tell them to divide the chart in two parts.
- Instruct them that they have to use one half of the chart paper now. The other half will be used later.
- The participants have to write all the words that come to their mind related to the recruitment process.
- Give them 10 minutes to do the activity.
- Tell them that there are no right or wrong answers.
- Keep a track of the time.

Say 

- You all know quite a few words related to the terms used in the office.
- Let us talk about some new terms that have been missed out.
- Discuss “Work Readiness – Terms and Terminology” with the participants as given in the Participant Handbook.

Ask 

- Why is it important to know the workplace terms?
- How do they help?
- Can the words be categorised further?

Say 

- Let's now continue the activity.

Team Activity **Terms and Terminology**

- This is again a group activity. The members of the group remain the same as in Activity 1.

Part 2

With the help of the new terms you have learned, make a flow chart of the hiring process of MND Company.

Activity De-brief

- Ask the groups to share the flow charts and the new terms they added while preparing the flow chart.

Do 

- Instruct the participants that they have to use the 2nd half of the same chart they had used before.
- Using the new terminology and the terms they had previously written on the chart, they have to make a flow chart of the hiring process of the MND Company.
- Give them 10 minutes for this activity.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Say 

- Let's go ahead with the activity.

Team Activity **Terms and Terminology**

- The activity continues with the same group members.

Part 3

Sheila now works for the MND Company. She is not aware of the company culture and policies. She goes to the HR Department to get her doubts clarified. Can you think of the terms for which she wants clarity? Make a list of those words.

Activity De-brief

- Ask the groups to share their list of words. Some of the words are benefits, comp. time, deduction, employee training, holidays, lay-off, leave, maternity leave, mentor, notice, paternity leave, and time sheet.

Do



- Instruct the participants to identify the key terms an employee of a company should know. They can use the same chart paper for this activity.
- Give them 5 minutes for this activity.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Summarize



- Note: You can either summarize the key points of the unit or have a role play where an employee has just joined a company and the HR Manager explains the terms of employment.

Unit 10.5: Understanding Entrepreneurship

Key Learning Outcomes



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

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Describe the characteristics of an entrepreneur
4. Describe the different types of enterprises
5. List the qualities of an effective leader
6. Discuss the benefits of effective leadership
7. List the traits of an effective team
8. Discuss the importance of listening effectively
9. Discuss how to listen effectively
10. Discuss the importance of speaking effectively
11. Discuss how to speak effectively
12. Discuss how to solve problems
13. List important problem solving traits
14. Discuss ways to assess problem solving skills
15. Discuss the importance of negotiation
16. Discuss how to negotiate
17. Discuss how to identify new business opportunities
18. Discuss how to identify business opportunities within your business
19. Explain the meaning of entrepreneur
20. Describe the different types of entrepreneurs
21. List the characteristics of entrepreneurs
22. Recall entrepreneur success stories
23. Discuss the entrepreneurial process
24. Describe the entrepreneurship ecosystem
25. Discuss the purpose of the Make in India campaign
26. Discuss key schemes to promote entrepreneurs
27. Discuss the relationship between entrepreneurship and risk appetite
28. Discuss the relationship between entrepreneurship and resilience
29. Describe the characteristics of a resilient entrepreneur
30. Discuss how to deal with failure

10.5.1: Concept Introduction (Characteristic of an Entrepreneur, types of firms/ types of enterprises)

Unit Objectives

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

- Discuss the concept of entrepreneurship
- Discuss the importance of entrepreneurship
- Discuss the characteristics of an entrepreneur
- Describe the different types of enterprises

Resources to be Used

- Participant Handbook

Say

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

Team Activity

Quiz Questions

1. Who is the founder of Reliance Industries?
Dhirubhai Ambani
2. Who is the Chairman of Wipro Limited?
Azim Premji
3. Who launched e-commerce website Flipkart?
Sachin Bansal and Binny Bansal
4. Who is the founder of Paytm?
Vijay Shekhar Sharma
5. Who is CEO of OLA Cabs?
Bhavish Aggarwal
6. Who is the founder of Jugnoo?
Samar Singla (autorickshaw aggregator)
7. Who is the founder of OYO Rooms?
Bhavish Aggarwal

Do

- Tell them that you will ask them few questions about a few entrepreneurs.
- Divide the class in to two groups.
- In turns ask the quiz questions to the groups.
- If the answer is incorrect pass the question to the other group.
- Share the answer if the groups are not able to answer.
- Congratulate the participants who answered correctly.

Ask

- What do you understand by entrepreneurs?
- What is the importance of entrepreneurship in today's scenario?
- What do you think are the characteristics of successful entrepreneurs?
- What are different types of enterprises that an entrepreneur in India can own and run?

Say

- Talk about entrepreneurs, importance of entrepreneurship, characteristics of successful entrepreneurs, and different types of enterprises in India as discussed in the Participant Handbook.
- Tell the participants, stories of successful Indian entrepreneurs- their struggles, the moments of heartbreak, the perseverance and triumph.
- Ask them if they know of any such entrepreneur.

Summarize

- Close the discussion by summarizing about the opportunities for entrepreneurs in India.

Notes for Facilitation

- Check out different Government schemes for small entrepreneurs. Share the information with the participants.
- You can tell them about the government websites like Start Up India, mudra.org.in etc.
- Discuss about various schemes and policies by the Government of India for entrepreneurs.

10.5.2: Leadership and Teamwork

Unit Objectives

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

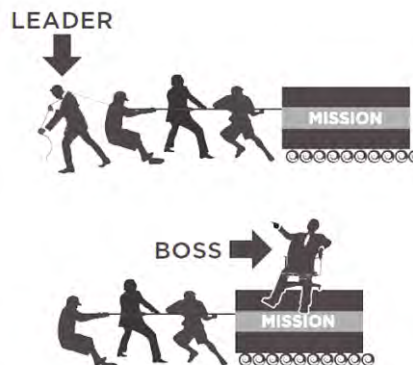
- List the qualities of an effective leader
- Discuss the benefits of effective leadership
- List the traits of an effective team

Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

Do

- Show the picture given below to the class.
- Ask them to quickly write on a piece of paper what comes to their mind after seeing the picture.
- Now ask them, “What do you understand from this picture?”
- Encourage participants to share their thoughts.



Say

- This picture depicts the qualities of a leader and the difference between a leader and a boss.
- A boss focuses on structure and inspires fear whereas a leader follows vision and generates enthusiasm.
- A boss blames employees for the breakdown whereas a leader fixes breakdowns.
- A boss depends on authority whereas a leader depends on goodwill.
- A boss says “I” and a leader says “We.”
- A boss drives employees whereas a leader coaches them.
- A boss takes credit whereas a leader gives credit.

Say

- Talk about leadership and leadership qualities for an entrepreneur as discussed in the Participant Handbook.

Ask

- Why is it important for a leader to be effective? How does it help the organization?

Say 

- Let us discuss benefits of effective leadership as discussed in the Participant Handbook.
- “Out-of-the-box thinking” is one of the new leadership styles. It means thinking differently and from a new perspective.

Ask 

- Do you consider yourself a team player?

Team Activity **Long Chain**

- This is a group activity.

Do 

- Divide the class into 2 teams.
- Ask each team to create a chain using materials they have in class such as shoe laces, belts, paper, handkerchief, ribbons, etc.
- The team that creates the longest chain wins the game.
- Observe if the participants are interacting with their team or working in isolation.
- Share your observations with the class.

Say **De-brief:**

- What did the winning team do differently?
- Who was responsible for the winning team's success?
- How does this activity explain the role of teamwork in entrepreneurial success?

Say 

- Tell the class that both the teams performed well.
- Discuss that the objective of this activity was to open communication channels and how this has been achieved.
- The participants should aim to keep the communication channels open when interacting with their peers and team members.
- It will set the pace and enthusiasm required for all the ensuing teamwork activities.
- Talk about teamwork and importance of teamwork in entrepreneurial success as discussed in the Participant Handbook.

Summarize 

- Close the discussion by summarizing about the importance of teamwork for employees.
 - Teamwork helps in reducing stress for the employees.
 - Teamwork helps employers in generating more number of solutions to a problem and developing improved communication amongst employees.
- Ask the participants what they have learned from these exercises.
- Ask if they have any questions related to what they have talked about so far.

10.5.3: Communication Skills: Listening & Speaking: The Importance of Listening Effectively

Unit Objectives

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

- Discuss the importance of listening effectively
- Discuss how to listen effectively
- Discuss the importance of speaking effectively
- Discuss how to speak effectively

Resources to be Used

- Participant Handbook

Activity 1

Activity – Chinese Whisper

Step 1: Form a circle.

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

Step 3: The next person who first heard the message should whisper the message very quickly to the person sitting next to them.

Step 4: The game goes on until the last person says whatever they heard out loud and the first person reveals the real message.

Compare them and have a great laugh!

Ask

De-brief questions:

- Was the original message the same as the message that is communicated at the end of the game?
- Why do you think there was a difference in the messages?

Say

- No, the original message was not same at the end of game.
- The barriers to communication like language, disturbance and noise, poor listening skills, boredom, poor speaking skills, etc. are the potential reasons this happens.
- There are various aspects to communication. Speaking skills and listening skills are two major components to any communication. There is always some room for improvement in the way we communicate.
- It is important to accept the reality of miscommunication and work to minimise its negative impacts.

Say

- Communication is a two-way process where people exchange information or express their thoughts and feelings
- It involves effective speaking and effective listening.
- If I go to the store to get bread, I exchange money for the bread. I give something and get something in return. Communication takes place in the same manner. You have to provide and receive information for communication to take place.

Ask

- How often do you hear these statements?
 - ♦ “You're not listening to me!”
 - ♦ “Why don't you let me finish what I'm saying?”
 - ♦ “You just don't understand!”
- What do you think the other person is trying to convey to you through these sentences?
- We will not talk about the importance of listening effectively as discussed in the Participant Handbook.

Say

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

Do

- This is a class activity.
- The participants need to answer the questions they hear.
- Instruct them to listen carefully.
- You will read it at a stretch and if need be repeat it once more.
- Tell the participants to raise their hand if they know the answer to the question asked.
- Keep a check on time.

Activity 2

Riddles:

Is there any law against a man marrying his widow's sister?

If you went to bed at eight o'clock at night and set the clock's alarm to ring at nine o'clock, how many hours of sleep would you get?

Do they have a 26th of January in England?

If you had only one match and entered a dark room that had a kerosene lamp, oil heater, and a wood stove, what would you light first?

The Delhi Daredevils and the Chennai Super Kings play five IPL matches. Each wins three matches. No match was a tie or dispute. How is this possible?

There was an airplane crash. Every single person died, but two people survived. How is this possible?

If an airplane crashes on the border of two countries, would unidentified survivors be buried in the country they were travelling to or the country they were travelling from?

A man builds an ordinary house with four sides except that each side has a southern exposure. A bear comes to the door and rings the doorbell. What is the colour of the bear?

Answers:

There's no law against a man marrying his widow's sister, but it would be the neatest trick in the book since to have a widow, the man would have to be dead.

You'd get one hour's sleep since alarm clocks do not know the difference between morning and night.

Oh, yes. They have a 26th of January in England. They also have a 27th, a 28th, and so on.

First of all, you would light the match.

Who said the Delhi Daredevils and the Chennai Super Kings were playing against each other in those games?

Every SINGLE person died, but those two were married.

You can't bury survivors under any law especially if they still have enough strength to object.

The bear that rang the doorbell would have to be a white bear. The only place you could build a house with four southern exposures is at the North Pole where every direction is in South.

Ask **De-brief question:**

- What were the barriers that came into your way of listening?
- How can you overcome barriers to listening?

Say 

- There is a difference between hearing and listening.
- If you don't listen properly, the message may be misunderstood.
- Be open-minded while listening to someone.
- It is important to listen effectively and carefully without making assumptions.

Activity 3 **Elevator Pitch:**

You are in the lift of a hotel and you bumped into your former client who is a famous businessman. He has financed a lot of small business ventures and can finance your new start-up too. After exchanging pleasantries, he asks you what your new company does. You open your mouth, and then pause. Where do you even begin?

Then, as you try to organize your thoughts, his meeting is called, and he is on his way. If you would have been better prepared, you're sure that he would have stayed long enough to schedule a meeting with you too.

If you were given another chance, what would you have said to this person?

Do 

- Start off the task by providing a beginning sentence to get the story started, and then go around the classroom getting each one to add a new sentence to keep the story going.
- This task should be done spontaneously allowing only a little time to think (30 seconds).
- For example: **There was once a student who was looking for a job after graduation.**

Notes for Facilitation



- Tell the participants to follow these steps to create a great pitch, but bear in mind that you'll need to vary your approach depending on what your pitch is about.
 1. **Identify Your Goal:** Start by thinking about the objective of your pitch. For instance, do you want to tell the potential clients about your organization? Do you have a great new product idea that you want to pitch to an executive or do you want a simple and engaging speech to explain what you do for a living?
 2. **Explain What You Do:** Start your pitch by describing what your organization does. Focus on the problems that you solve and how you help people. Ask yourself this question as you start writing: what do you want your audience to remember most about you? Keep in mind that your pitch should excite you first. After all, if you don't get excited about what you're saying neither will your audience. People may not remember everything that you say, but they will likely remember your enthusiasm.
 3. **Communicate Your USP:** Your elevator pitch also needs to communicate your unique selling proposition or USP. Identify what makes you, your organization or your idea unique. You'll want to communicate your USP after you've talked about what you do.
 4. **Engage with a Question:** After you communicate your USP, you need to engage your audience. To do this, prepare open-ended questions (questions that can't be answered with a "yes" or "no" answer) to involve them in the conversation. Make sure that you're able to answer any questions that he or she may have.
 5. **Put it all Together:** When you've completed each section of your pitch, put it all together. Then, read it aloud and use a stopwatch to time how long it takes. It should be no longer than 20-30 seconds. Remember, the shorter it is, the better!

Example:

Here's how your pitch could come together:

"My company deals with cloth retail online business and we use various e-commerce platforms to sell our products. This means that you can do shopping with ease and spend time on other important tasks. Unlike other similar companies, we have a strong feedback mechanism to find out exactly what people need. This means that, on average, 95 percent of our clients are happy with our products. So, how can you help us in creating our own web portal?"

6. **Practice:** Like anything else, practice makes perfect. Remember, how you say it is just as important as what you say. If you don't practice, it's likely that you'll talk too fast, sound unnatural or forget important elements of your pitch. Set a goal to practice your pitch regularly. The more you practice, the more natural your pitch will become. Practice in front of a mirror or in front of colleagues until the pitch feels natural.

Summarize



- Close the discussion by summarizing how to speak effectively as discussed in the Participant Handbook.

10.5.4: Problem Solving & Negotiation Skills

Unit Objectives

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

- Discuss how to solve problems
- List the important problem solving traits
- Discuss ways to assess problem solving skills
- Discuss the importance of negotiation
- Discuss how to negotiate

Resources to be Used

- Participant Handbook

Ask

- What is a 'problem'?
- What do you think are the problems you may face in the process of becoming a successful entrepreneur?

Say

- Discuss the definition of problem as given in the Participant Handbook.
- In a hurdle race the hurdles are the obstacles on the way to reach your goal.
- Similarly, obstacles are the hurdles you may face while reaching your goal i.e. to set-up your own business. Your goal will be to reach the finishing line after crossing these hurdles.

Ask

- What do you do when you face a problem?
- How do you resolve it? You can pick examples from the question asked previously 'the problems they are likely to face in the process of becoming a successful entrepreneur'.

Say

- Discuss how to solve problems as given in the Participant Handbook.

Team Activity

- This is a group activity.
 - The groups will solve the problem and come up with the best solution in each case.
1. Unable to arrange for some extra finance for setting up a beauty parlour. The loan sanctioned and disbursed is not enough. You have tried all your contacts, friends and relatives. But unable to manage the extra amount. Bank will not sanction more amount as you have used up the complete sanction limit.
 2. You have rented a space for your business and all arrangements are done. You will be operating from the office space rented in two days. Now the owner comes up to you and says he wants to sell the place and wants you to vacate in 15 days.
 3. You have just set up your business and need extra human resource. You have tried inviting a few also tied up with an agency for getting the right candidate. But you are unable to get the right candidate. If the candidate is good, you cannot offer the salary demanded. If the candidate agrees to the salary, he/she has other demands like working hours to be reduced, leaves etc. which may not work for your set up.

Do 

- Divide the class into three groups. Give one scenario to each group.
- Explain the purpose and duration of the activity.
- Ask the groups to build on the scenario and present their solution as a role play.

Say **De-brief questions:**

1. What was the problem?
2. Is there any other alternative solution?
3. Is this the best solution presented?

Ask 

- Try to think of some people around you who are able to solve problems very easily. Even you or your friends might be approaching them when there is a problem. What qualities do they have? What personality traits do such people possess?

Say 

- Discuss the important traits for problem- solving as given in the Participant Handbook.

Ask 

- In order to build a successful organization, you need to hire people who possess good problem solving skills. How would you assess the level of problem solving skills of potential candidates before hiring them?

Say 

- Discuss how to assess for problem- solving skills as given in the Participant Handbook.

Summarize 

- Ask the participants the things that they have learnt so far.
- Ask if they have any questions related to what they have talked about so far.
- Summarize the discussion on problem solving.

Activity 

- The activity is to organise an election event. Select three volunteers from the group. They have to give a speech on their election manifesto to the class. They have to negotiate with the fellow participants and convince them to vote for them. The best negotiator will win the election.

Do 

- Ask three participants to volunteer for the activity.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Ask 

- Out of the three contestants, whom would you support? Why? What did they say or do which convinced you to make your decision?
- Have you ever tried to negotiate in your personal or professional life?
- Ask the class to share some of their experiences where they have been able to strike a deal by negotiating.

Say 

- Discuss “What is Negotiation?” as given in the Participant Handbook.

Ask 

- Why is it important to negotiate? As an entrepreneur, where do you think that negotiation skills will be needed?

Say 

- Discuss the importance of negotiation while starting a business as given in the Participant Handbook.

Say 

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

Role Play 

- Conduct a role play activity.
- Ask the participants to assemble together.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.

Do 

- Divide them into groups of four (4) (depending on the batch size).
- Give them the hand-outs for role play scenarios.
- Two groups to be given scenarios on problem solving.
- Other two groups to be given scenarios on negotiation.
- The groups will build on the scenarios and prepare for the role play.
- Give the groups atleast 5 mins to discuss and be ready with the role play.
- Invite each group one by one to come and present their role play.

Problem solving Scenario 1

Avinash has a Mobile Repair Store in Allahabad. His outlet is one of the most popular one in the vicinity and he has great rapport with his customers. He is always well-dressed, jovial and full of energy.

It's around 11 AM, when a customer barges in to the shop and starts shouting at Avinash for giving her back the instrument which is still not working. The screen of her mobile is also cracked from one side. Avinash remembered thoroughly checking the handset before handing it over to the customer. The customer threatens to sue the company and to go to Consumer Court for cheating her.

Problem solving Scenario 2

You are running a successful small scale business, Shreeji Aggarbattis,. Your staff members do door to door selling and organise marketing campaigns in local markets. Your brand has established it's name in last few years.

Recently, lot of customers have been coming to you and lodging complaints that your staff members indulge in malpractices. Few of them informed you that a staff member engaged them in a friendly conversation. In the meanwhile, the other gave them lesser packets of aggarbattis than they paid for.

Another set of customers lodged complaint about the misconduct and rude behaviour of a particular staff member. You often hear from your customers that the orders don't get delivered on time or wrong products get delivered.

You have already been struggling with shortage of staff and such complaints are a serious concern as it is hampering your brand image. What strategies will you adopt to solve this problem?

Negotiation Scenario 1

You have interviewed a prospective new employee who could be a key member of your new entrepreneurial venture. The new person is demanding a salary that is 20% higher than you thought based on your business plan. Finances are tight, yet you believe this person could make a significant impact on future profits. If you paid the required salary for the new person, then you would have to restructure your entire business plan. You've been searching for an individual with this skill level for three months. to the candidate is waiting for your response. Now you have to call him in to make the final negotiations.

Negotiation Scenario 2

You are a young entrepreneur who has just registered his start up project and applied for a bank loan accordingly. You receive a letter saying that your loan application has been rejected as your start up idea did not appeal to the bank and they think that it is not a revenue generating model. You have taken an appointment to meet the manager and show your negotiation skills to get your loan approved.

Notes for Facilitation**Facilitating Role Plays****Preparing for the activity**

1. Carefully review the details of the scenario and the character descriptions.
2. Become familiar with the key issues being addressed in the scenario.
3. Study the provided material so that you are ready to address issues related to the situations depicted in the role-plays.
4. Anticipate and know how to address issues participants might raise during the activity.

Conducting the activity

1. Introduce the activity. Emphasize that role-playing provides participants with an opportunity to apply their new knowledge, skills, and tools in situations that simulate actual interactions with customers.
2. Ask participants to form pairs. Direct the members of each group to choose who will play the roles. Remind the groups that each participant should be given the opportunity to play/practice the different roles.
3. Conduct a demonstration so that participants become familiar with the expectations related to the roles and support materials.
4. Give the pairs/ groups 10 to 15 minutes to conduct the role-play (depending on the duration of the session).
5. After all the groups have finished with the role-play, conduct a debriefing session on each role-play.
6. Ask the groups to take five minutes to talk about what happened during the role-play. The groups should discuss the questions given in the debriefing for each role-play. Encourage participants to provide constructive criticism during their discussions.

Summarize

- Wrap the unit up after summarizing the key points and answering questions.

10.5.5: Business Opportunity Identification: Entrepreneurs and Opportunities

Unit Objectives

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

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

Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

Ask

- How does an entrepreneur identify an opportunity?
- What do you think are the common queries or concerns faced by entrepreneurs?
- How can you identify new business opportunity?

Say

- Let's talk about opportunity, common queries or concerns faced by entrepreneurs, idea as an opportunity, factors to consider when looking for opportunities, ways to identify new business, and opportunity analysis as discussed in Participant Handbook.
- Let's do an activity to understand ways to identify business opportunities within your business.

Do

- Tell the class that this is an individual activity.
- Tell the participants to create a matrix on their notebooks.
- There will be four boxes in your matrix.
- Strength, Weakness, Opportunity and Threats will be the four headings of the matrix. This is called the SWOT matrix.
- Read out the questions to them and tell the participants they need to answer the questions asked in each matrix.
- Tell them they can also use their own understanding of themselves to fill the SWOT matrix.

Activity

Do your SWOT analysis

Strength

What are your strengths?
What unique capabilities do you possess?
What do you do better than others?
What do others perceive as your strengths?

Weakness

What are your weaknesses?
What do your competitors do better than you?

Opportunity

What trends may positively impact you?
What opportunities are available to you?

Threat

Do you have solid financial support?
What trends may negatively impact you?

Do

- Congratulate everyone for the class activity.
- Ask the audience to applaud for themselves.
- Allot the participants sufficient time to complete this activity, but do keep a check on time.
- Ask de-brief questions to cull out information from the participants.

Ask

De-brief questions:

- What are your weaknesses according to your SWOT analysis?
- Do you think you can change your weakness into strength? How?
- Do you think you can work on your threats? How?

Summarize

- Close the discussion by summarizing ways to identify business opportunities within your business.
- Ask the participants what they have learned from this exercise.
- Ask if they have any questions related to what they have talked about so far.

10.5.6: Entrepreneurship Support Eco-System

Unit Objectives

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

- Explain the meaning of entrepreneur
- Describe the different types of entrepreneurs
- List the characteristics of entrepreneurs
- Recall entrepreneur success stories
- Discuss the entrepreneurial process
- Describe the entrepreneurship ecosystem
- Discuss the purpose of the 'Make in India' campaign
- Discuss the key schemes to promote entrepreneurs

Resources to be Used

- Participant Handbook
- Chart papers
- Marker pens
- Pencils
- Colour pencils
- Scale
- Eraser
- Other requisite stationery material

Ask

- Do you think that entrepreneurs need support?
- What do you think is an eco-system?
- What do you think 'entrepreneurship support eco-system' means?

Say

- Let's learn what entrepreneurship support eco-system means.
- Discuss 'Entrepreneurship Support Eco-System' as given in the Participant Handbook.

Ask

- Can you define entrepreneurship support eco-system?
- What are the key domains of the support eco-system?

Say

- Let's learn more about these domains by conducting an activity.
- You have to make a poster showing the components of the six main domains of entrepreneurship support eco-system.

Team Activity

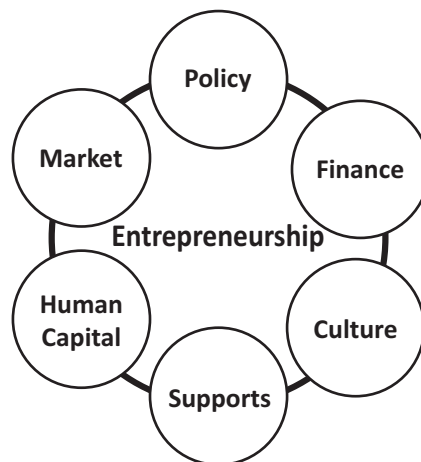
- Making a poster showing the entrepreneurship support eco-system.

Do

- Divide the class into groups of four or six.
- Hand out chart paper and coloured pens.
- Explain the purpose and duration of the activity.
- Go around checking the progress of each group.
- Set guidelines pertaining to discipline and expected tasks.

Activity De-brief

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



Ask

- What kind of government support eco-system is available for entrepreneurs in India?

Say

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

Team Activity

- Presentation on key schemes to promote entrepreneurs

Do

- Divide the class into pairs.
- Number each pair from 1-15.
- Assign a scheme, same as their group number, to each group.
- Ask them to read the scheme carefully and present it to the class.
- Explain the purpose and duration of the activity.
- Go around checking the progress of each group.
- Set guidelines pertaining to discipline and expected tasks.

Activity De-brief

- Ask each group to explain the scheme offered by government to promote entrepreneurs.

Summarize

- Summarize the unit by discussing the key points and answering questions the participants may have.

10.5.7: Risk Appetite & Resilience

Unit Objectives

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

- Discuss the relationship between entrepreneurship and risk appetite
- Discuss the relationship between entrepreneurship and resilience
- Describe the characteristics of a resilient entrepreneur

Resources to be Used

- Participant Handbook
- Chart papers
- Blank sheets of paper
- Pens
- Marker pens

Ask

- Can you define risk or explain what constitutes a risk?
- What do you people mean when they say, “This may be a risky proposition”?
- What risks are they talking about?

Example

- Let's have a look at these two examples:

Rohit and his family were travelling by car from Delhi to Nainital. It was their second trip there. Rohit was familiar with the road. His friends told him that the highway after Rampur was in a bad condition. They advised him to take a shortcut and turn left from Moradabad and take the Kaladhungi road. This road is in a better condition.

Since he was going with his family, and did not want to take the risk of getting lost, he left early. He took the Kaladhungi road and reached Nainital well in time.

Suresh and his family too were travelling by car from Delhi to Nainital. It was their second trip there. His friends too advised him to take a shortcut and turn left from Moradabad and take the Kaladhungi road as this road was in a better condition.

Suresh too decided to take the Kaladhungi road but he left Delhi in the afternoon. It was dark by the time he reached Kaladhungi, and he was sure that he was taking the correct turn. As it was late, he could not find anyone to give him directions. He ended up being in an unknown place that was scarcely inhabited.

Say

- Let's see what type of risks Rohit and Suresh took.
- Discuss 'Risk Appetite and Resilience' with the participants as given in the Participant Handbook.

Say

- Let's learn more about risk appetite and resilience with the help of an activity.

Team Activity

Risk Appetite

- This is a group activity.

- In the previous unit, you read success stories of Mr Dhirubhai Ambani and Dr Karsanbhai Patel.
- Mr Ambani left his job and started his company Reliance with just Rs. 50,000/-.
- Dr Patel kept his job, went door-to-door to sell Nirma, and only when the brand started gaining popularity did he start his own company.
- What types of risk did both of them take?
- What risk factors, do you think, did they keep in mind before launching their company?
- Write the Risk Appetite Statement of both the companies.

Activity De-brief

- Who took a greater risk?
- What are the differences between the Risk Appetite Statement of both the companies?

Do

- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper.
- Tell the participants that they have to evaluate the risks taken by Mr Dhirubhai Ambani and Dr Karsanbhai Patel.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Ask

- Do you think all entrepreneurial ventures are successful?
- What happens if the first venture is not successful?
- Should the entrepreneur stop when faced with challenges or face them?

Example

- Let's have a look at the following example:

Vijay Shekhar Sharma is the founder of Paytm, which is a giant Indian e-commerce. He was born in a middle-class family in Uttar Pradesh. He started his first job at an MNC. He quit after six months and built a company One97 with his friends. As One97 grew bigger, it needed more money because it was running more servers, bigger teams, and had to pay royalty. At that time, the tech bubble popped and technology companies were running in losses. Finally, money ran out. So One97 took loans and then more loans at higher rates of interest, as high as 24 per cent, and became caught in a vicious cycle.

In 2014, Paytm was launched with online wallet services after which, the company enabled online payment transactions. The company got licenses from RBI in 2016 to launch India's first ever payment bank. Moreover, the main motive of Paytm was to transform India into a cashless economy.

After demonetization came into effect, Vijay Shekhar Sharma started promoting online and digital transactions to deal with the cash crunch. In fact, the service of the company's mobile wallet is accepted across India. The logo of Paytm is now popular almost everywhere from tea stalls to major companies.

Say 

- Let's see what qualities made Vijay Shekhar Sharma a resilient entrepreneur.
- Discuss Entrepreneurship and Resilience with the participants as given in the Participant Handbook.

Say 

- Let's learn more about entrepreneurship and resilience with the help of an activity.

Team Activity **Entrepreneurship and Resilience**

- This is a group activity.
- Think of some entrepreneurship ventures that faced challenging times, but later resulted in success stories.
 - Who is the founder of that company?
 - What challenging times did it face?
 - How did it overcome those challenges?
 - List the resilient characteristics of the entrepreneur.

Activity De-brief

- Each group to give their presentation.
- Why did you choose this company?
- What is the success story of the company?

Do 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper.
- Tell the participants that they have to think of an entrepreneur who faced challenging times, but eventually succeeded.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Summarize 

- You can summarize the key points of the unit.
- Ask the participants what they learned from the activities.
- Clarify any questions or doubts they might have.

10.5.8: Success and Failures

Unit Objectives

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

- Discuss how to deal with failure

Resources to be Used

- Participant Handbook

Ask

- Have you heard the quote 'nothing is impossible'?
- What do you think it means?
- Do you think that all successful entrepreneurs became famous overnight or did they have to struggle or face failure before succeeding?

Example

- Let's have a look at this example.

Shah Rukh Khan, also known as, SRK or King Khan is a force to reckon with. Did he achieve stardom overnight? Shah Rukh Khan, who has seen many struggles in his life – he has slept on streets, struggled to support himself and his sister at a very young age, and lost his parents very early in life, which led to his sister seeking mental health support. Amidst all the chaos and challenges, he kept pushing himself, and today he stands tall as the 'Badshah of Bollywood'. Certainly those years were not easy for him.

When he was young, he stood at Marine Drive and said, "I will rule this city one day". Failure was not just his companion during or before his stardom, it is still a substantial part of his life. Success does not come easy. What made him a star was his acceptance of failure and the urge to improve.

Say

- How do you define success and failure?
- What is fear?
- Discuss "success and failure" with the participants as given in the Participant Handbook.

Ask

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

Say

- Let's learn the about success and failure with the help of an activity.

Team Activity

- Divide the class into groups of four.
- Instruct them to think of one scenario where they have to interview a successful entrepreneur.
- Explain the purpose and duration of the activity.
- Set guidelines pertaining to discipline and expected tasks.
- They have to choose one person from the group as the interviewee and one as the interviewer.
- Go around and make sure they have understood what is to be done and are discussing the roles properly.
- Check that everyone understands their role. Give clarifications if needed. Give the participants about 5 minutes to discuss and decide their roles.
- Ask the groups to stop the discussion as soon as the time is over.
- Invite each group one by one to come and present their interview as a role play.

Notes for Facilitation

Facilitating Role Plays

Preparing for the activity

1. Carefully review the details of the scenario and the character descriptions.
2. Become familiar with the key issues being addressed in the scenario.
3. Study the provided material so that you are ready to address issues related to the situations depicted in the role plays.
4. Anticipate potential questions that might be raised by the participants and be ready to address them.

Conducting the activity

1. Introduce the activity. Emphasize that role playing provides participants with an opportunity to apply their new knowledge, skills, and tools in situations that simulate actual interactions with customers.
2. Ask participants to form pairs. Direct the members of each group to choose who will play the roles. Remind the groups that each participant should be given the opportunity to play/practice the different roles.
3. Conduct a demonstration so that participants become familiar with the expectations related to the roles and support materials.
4. To maintain spontaneity of the interactions during the role play, ask the participants not to discuss the details of their roles prior to the role play.
5. Give the pairs 15-20 minutes to conduct the role play.
6. Circulate among the groups to answer any questions that may arise and provide guidance as needed.
7. After all the pairs have finished with the role play, conduct a de-briefing session on each role play.
8. Ask the groups to take five minutes to talk about what happened during the role play. The groups should discuss the questions given in the de-briefing for each role play. Encourage participants to provide constructive criticism during their discussions.
9. Conclude the activity by asking participants to think about whether and how they might use scripted role plays in their real life.

Summarize

- Wrap the unit up after summarizing the key points and answering questions.

Unit 10.6: Preparing to be an Entrepreneur

Key Learning Outcomes



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

1. Discuss how market research is carried out
2. Describe the 4 Ps of marketing
3. Discuss the importance of idea generation
4. Recall basic business terminology
5. Discuss the need for CRM
6. Discuss the benefits of CRM
7. Discuss the need for networking
8. Discuss the benefits of networking
9. Discuss the importance of setting goals
10. Differentiate between short-term, medium-term and long-term goals
11. Discuss how to write a business plan
12. Explain the financial planning process
13. Discuss ways to manage your risk
14. Describe the procedure and formalities for applying for bank finance
15. Discuss how to manage their own enterprise
16. List the important questions that every entrepreneur should ask before starting an enterprise

10.6.1: Market Study/ The 4Ps of Marketing/ Importance of an IDEA: Understanding Market Research

Unit Objectives

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

- Discuss how market research is carried out
- Describe the 4 Ps of marketing
- Discuss the importance of idea generation

Resources to be Used

- Participant Handbook
- Chart papers
- Markers pens
- Blank sheets of paper

Ask

- Suppose, you want to open a restaurant, what are the factors you will consider?
- How will you promote your restaurant?

Example

- Let's have a look at this example.

Arjun was an MBA working in a company. But he wanted to start a low cost budget hostel for foreign tourists coming to India. He did a lot of market research before starting the project. Based on the information he gathered, he made his business plan. His hostel is now flourishing and he is thinking of expanding to other tourist destinations.

Say

- Discuss “Market Study” with the participants. Refer to the Participant Handbook.
- Let's learn about market study and research with the help of an activity.

Team Activity

Market Study

- This is a group activity.
- You want to start your own tuition centre.
- What type of research will you do?

Activity De-brief

- Ask each group to come forward and give a brief presentation.
- Encourage other groups to be interactive and ask questions.
- What factors did you keep in mind while doing your research?
- Based on our research would you go ahead and open a tuition centre?

Do 

- Instruct the participants that this is group work.
- Divide the class into small groups of 4 or 6.
- Give each group a chart paper.
- Tell the participants that they have to start their own tuition centre.
- Give the participants 10 minutes to discuss and write the research work they need to do.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Say 

- By opening a tuition centre you are offering a service.

Ask 

- What factors will you keep in mind before opening it?

Say 

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

Say 

- Let's learn about the 4Ps of Marketing with the help of an activity.

Team Activity **4 Ps of Marketing**

- This is a group activity.
- You have to sell a pen to four different segments:
 1. Rural villagers
 2. Rural middle class
 3. Urban middle class
 4. Upper end rich people (Niche market)

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

Activity De-brief

- Ask each group to present their strategy.
- Encourage other groups to be interactive and ask questions.

Do 

- Instruct the participants that this is group work.
- Divide the class into four groups.
- Give each group a chart paper.
- Assign each group a target audience for selling the pens:
 1. Rural villagers
 2. Rural middle class
 3. Urban middle class

- 4. Upper end rich people
- Tell the participants that they have to design a marketing strategy keeping the 4Ps of Marketing in mind.
- Give the participants 20 minutes to discuss and come up with their strategy.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit

Activity De-brief

- Ask each group to come forward and give a brief presentation.
- Ask each group what they kept in mind while designing their marketing strategy.
- Encourage other groups to be interactive and ask questions.

Say 

- Each entrepreneur has an idea of wants he wants to sell. It may be a service or a product.
- Discuss “Importance of an IDEA” as given in the Participant Handbook.

Summarize 

- Summarize the key points of the unit.
- Ask the participants what they learnt from the activities.
- Encourage them to ask if they have any doubts.

10.6.2: Business Entity Concepts

Unit Objectives

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

- Recall basic business terminology

Resources to be Used

- Participant Handbook

Say

- Let's recall some basic business terminology.
- Discuss the Business Entity Concepts as given in the Participant Handbook.
- Let's learn some basic business terminology by having an activity.
- We will have a quiz today.

Activity

- The activity is a quiz.

Do

- Divide the class in two groups and give a name to each group.
- Explain the rules of the quiz. For each correct answer the group gets 1 mark.
- If the group is unable to answer the question is passed to the next group.
- Explain the purpose and duration of the activity.
- Ask the questions of the quiz.
- Keep a score of the groups.
- Set guidelines pertaining to discipline and expected tasks.

Summarize

- Summarize the unit by discussing the key points.

Notes for Facilitation

QUESTIONS FOR THE QUIZ

1. What does B2B mean?
Business to business
2. What is a financial report?
A comprehensive account of a business' transactions and expenses
3. Who is a sales prospect?
A potential customer
4. How is working capital calculated?
Current assets minus current liabilities

5. What is an estimation of the overall worth of a business called?

Valuation

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

Complex transaction

7. How will you calculate the net income?

Revenue minus expenses

8. How is Return on Investment expressed?

As percentage

9. How will you calculate the cost of goods sold?

Cost of materials minus cost of outputs

10. What is revenue?

Total amount of income before expenses are subtracted.

11. What is a Break-Even Point?

This is the point at which the company will not make a profit or a loss. The total cost and total revenues are equal.

12. What is the formula used to calculate simple interest?

*$A = P(1 + rt)$; $R = r * 100$*

13. What are the three types of business transactions?

Simple, Complex and Ongoing Transactions

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

Depreciation

15. What are the two main types of capital?

Debt and Equity

10.6.3: CRM & Networking

Unit Objectives

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

- Discuss the need for CRM
- Discuss the benefits of CRM
- Discuss the need for networking
- Discuss the benefits of networking

Resources to be Used

- Participant Handbook

Ask

- Can your business run without customers/buyers?
- Who is the most important entity in any business?

Say

- The key to every success business lies on understanding the customer's expectations and providing excellent customer service.
- Discuss about CRM and its benefits. Refer to the Participant Handbook.
- Providing excellent customer service entails:
 - ♦ Treating your customers with respect.
 - ♦ Be available as per their need/ schedule.
 - ♦ Handling complaints effectively.
 - ♦ Building long lasting relationships.
 - ♦ Collecting regular feedback.
- Handle customer complaints proactively. Ask “what happened”, “why it happened”, “how can it be avoided next time”, etc.
- Collecting feedback from the customers regularly will enable you to improve your good/service.
- “Let's understand it better with the help of some case scenarios. You will be given some cases within your groups. You have to analyse the case scenario that has been given to you and then find an appropriate solution to the problem.”

Do

- Divide the class into four groups of maximum six participants depending on the batch size.
- Give one case study to each group.
- Instruct them to read the case carefully.
- The group is expected to analyse and discuss the case amongst them and find a solution to the given problem.
- Put down the discussion points (de-brief questions) on the board. Give the class 5-10 minutes to discuss the case and note down their solutions.
- At the end of 10 minutes, the team should present their case solution to the class.

Team Activity

Case Study Analysis

Raju runs a business of wooden furniture. He has a huge list of customers on Facebook and WhatsApp who give him orders regularly. Ankita is one of his old and regular customers. She placed an order for a new chester and TV cabinet via WhatsApp and requested Raju to send them as soon as possible. When the parcel reached Ankita through courier she found that chester was broken and the TV unit was chipped from the bottom. Ankita was heartbroken. It was a complete waste of money. She sent a message to Raju on WhatsApp, expressing her anger and disappointment. Raju might lose an old customer forever if he doesn't satisfy the customer. What should Raju do to retain his customer?

Scenario 2

Rajni runs a boutique shop. She sells suits and sarees. She is one of the most successful designer in her city. Rajni swears that all the clothes in her boutique have unique designs. Smita has to attend her cousin's wedding; she goes to Rajni's boutique to buy a saree. Smita wanted a unique designer saree. Rajni customized a saree for her and sent it over the courier. When Smita had a look at the saree she realised her two friends had the same design sarees. She sent a message to Rajni on WhatsApp, expressing her anger and disappointment. Did Rajni make a false promise? Were her designs copied? What could happen to Rajni's image after this incident? What would you do if you were in Rajni's place?

Scenario 3

Shama is a beautician who offers parlour services to ladies by making home visits. Recently, Shama got her name registered on an e-commerce website. Two days earlier, she got a message from Mrs Sushma. The appointment was fixed for next day, 11:00 am and the remuneration for the services was decided beforehand. When Shama reached there at 10:50 am, Mrs Sushma was not at home. When Shama called her, she asked her to wait for a while. Mrs Sushma reached home at 11:45 am. Meanwhile, Shama had to reschedule her next appointment. After availing Shama's services, Mrs Sushma refused to pay the requisite amount and started finding faults in the services provided by her. Who was at fault in this scenario? What should you do in case the customer behaves unreasonably? What would you do if you were in Shama's place?

Scenario 4

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 realize that she has not received the promised discount neither was there any mention of the free services. She immediately demands to see the Shailender. When Shailender's head asks how much discount Vinita was promised, he realised the discount will make the sale in loss. The car showroom owner might lose a customer and deal due to false commitments made by his manager. Besides, the customer might tell this to other people, creating a bad name and image for the showroom. If you owned that showroom, how would you have convinced your customer?

Say

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

Do 

- Congratulate each group for the presentation/ role play.
- Ask the audience to applaud for them.
- Keep a check on time. Tell the group to wind up the discussion quickly if they go beyond the given time limit.

Say 

- If your customers are happy with you they will give referrals which will help to grow your business.
- One more way of growing business is 'Networking'.
- Discuss Networking and its benefits. Refer to the Participant Handbook.

Activity **Group Discussion**

- Conduct a group discussion in the class on how they can do networking for their business.

Summarize 

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

10.6.4: Business Plan: Why Set Goals?

Unit Objectives

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

- Discuss the importance of setting goals
- Differentiate between short-term, medium-term and long-term goals
- Discuss how to write a business plan
- Explain the financial planning process
- Discuss ways to manage your risk

Resources to be Used

- Participant Handbook
- Chart papers
- Blank papers
- Marker pens
- Ruler

Ask

- Remember we had written SMART Goals in a previous session? Let's try and recall why it is important to set goals?
- While framing SMART goals, we talked about 'T' in SMART, which was 'Time Bound'? What do we mean by time bound goals?
- What time limit did you set for your goal- 3 weeks, 3 years, 10 years?

Say

- Talk about short term, long term and medium term goals, as discussed in the Participant Handbook.

Ask

- As you are planning to become an entrepreneur, you must have thought of an idea for a start-up. What is your business idea?

Do

- Ask few participants to share their business ideas.

Ask

- Have you created a business plan for your business idea?
- Do you think it is important to have a business plan in place? Why/ why not?

Say

- Talk about 'Why Create a Business Plan' as discussed in the Participant Handbook.
- Let's understand it better with the help of an activity.

Team Activity

Writing a business Plan

- This is a group activity.
- Give the groups the required resources such as chart paper and markers.
- This activity is divided into two parts:
 1. Create a business idea
 2. Develop a business plan
- The group will discuss and come up with a new business idea and present their idea to the class.
- In the second part of the activity the group will develop a business plan for the business idea.
- The business plan prepared will be presented by the groups to the class.

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 fund is required and from where?

Say

- Teams will need to brainstorm for this part of the activity.
- Use the blank papers for the second part of this activity
- Make your business plan on a chart paper based on the following parameters:
 1. Executive Summary
 2. Business Description
 3. Market Analysis
 4. Organization and Management
 5. Service or Product Line
 6. Marketing and Sales
- Explain each parameter in detail as done in the Participant Handbook.
- Discuss each parameter with the business idea examples of the groups.
- Groups will discuss and develop the business plan for their business idea.

Say 

- Now, let's share our plan with the class.
- Each group will briefly describe the plan to the class.
- Post presentation, the other groups may ask questions to the group who have presented their plan.

Do 

- Congratulate each group for sharing their points.
- Ask the audience to applaud for them.
- Keep a check on time. Tell group to wind up the discussion quickly if they go beyond the given time limit.

Say 

- Along with a business plan, you need to create a financial plan and evaluate the risk involved with your start up.
- Discuss 'Financial Planning' and 'Risk Management' in detail as given in the Participant Handbook.

Summarize 

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

Notes for Facilitation 

- Keep the business plan format ready in a flipchart to display it during the activity.

10.6.5: Procedures and Formalities for Bank Finance

Unit Objectives

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

- Describe the procedure and formalities for applying for bank finance

Resources to be Used

- Participant Handbook
- Bank loan/finance form sample

Ask

- While preparing a business plan in the last session, we discussed financial planning to arrange financial resources for your start-up. Therefore, how will you collect funds to start your business?

Say

- While most entrepreneurs think 'product' is the most difficult thing to decide for a business, start-up capital poses an even a bigger obstacle. Though there are various ways of funding the business, to convince investors to invest money is the most challenging.
- Some of the funding options available in India are:
 - ♦ **Bootstrapping:** Also called self-financing is the easiest way of financing
 - ♦ **Crowd funding:** Funds are collected by consumers pre-ordering or donating for starting the business.
 - ♦ **Angel investors:** Individual or group of investors investing in the company
 - ♦ **Venture capitalists:** Venture capitals are professionally managed funds who invest in companies that have huge potential. They usually invest in a business against equity.
 - ♦ **Bank loans:** The most popular method in India.
 - ♦ **Microfinance Providers or NBFCs**
 - ♦ **Government programmes**
- Let us 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.

Summarize

- Close the discussion by summarizing the important documents needed for bank loan.
- Ask the participants if they have any questions related to what they have talked about so far.

10.6.6: Enterprise Management – An Overview: How to Manage Your Enterprise?

Unit Objectives

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

- Discuss how to manage their own enterprise

Resources to be Used

- Participant Handbook

Ask

- Having set-up a business, do you think it is possible to do everything on your own?
- Does one require trained persons for help?
- What does management mean?

Say

- Let's have a look at this example:

Kapil had a small business that was beginning to pick up pace. He wanted to expand his business, and therefore employed few more people. One day, as he was walking past Ramesh, one of his new employees, he overheard Ramesh talking rudely to a customer on the phone. This set him thinking. Kapil realised that he should have regular team meetings to motivate his employees and speak with them about any problems they might be facing during work. He should also conduct training sessions on new practices, soft skills, and technology, and develop work ethics manual for managing his enterprise.

Say

- Was Kapil correct in his approach or he should have scolded Ramesh instantly in front of his other employees?
- Discuss “Enterprise Management – An Overview” with the participants as given in the Participant Handbook.

Say

- Let's learn how to effectively manage an enterprise or business through an activity.

Team Activity

Enterprise Management

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

Activity De-brief

- Have each group present their matrix.
- Encourage participants of the other groups to ask question about each other's presentation.

Notes for Facilitation



- Checklist of documents is provided as resources for the session.
- You can make some copies and distribute it during the group activity.
- Download sample loan application forms from any nationalised bank's website. Print sufficient copies to circulate it amongst the groups.

CHECKLIST OF DOCUMENTS TO BE SUBMITTED ALONG WITH LOAN APPLICATION (Common for all banks)
1. Audited financial statements of the business concern for the last three years
2. Provisional financial statements for the half – year ended on _____
3. Audited financial statements of associate concern/s for the last three years
4. Copy of QIS II for the previous quarter ended on _____
5. Operational details in Annexure I
6. CMA data for the last three years, estimates for current year and projection for the next year
7. Term loan/DPG requirements in Annexure II
8. List of machinery in respect of machinery offered as security in Annexure III
9. Additional details for export advances furnished in Annexure IV
10. Property statements of all directors/partners/proprietor/guarantors
11. Copies of ITAO of the company for the last three years
12. Copies of ITAOs/WTAOs of the directors/partners/proprietor and guarantors
13. Copies of certificate from banks and financial institutions certifying the latest liability with them
14. Copy of board resolution authorizing the company to apply to your bank for the credit facilities mentioned in application
15. Copy of memorandum and article of association (in case of limited company)/partnership deed (in case of partnership firm)
16. Cash budget for the current year and next year in case of contractors and seasonal industries

Do



- Instruct the participants that this is group work.
- Divide the class into small groups of 4.
- Give each group a chart paper and coloured pen.
- Tell the participants that they have to make a matrix they need to fill.
- They have to write the main topics and key words that will help them effectively manage their enterprise.
- Give the participants 15 minutes to discuss and write.
- Keep a check on time. Tell the group to wind up quickly if they go beyond the given time limit.

Summarize



- Ask the participants what they have learned from this exercise/activity.
- Ask if they have any questions related to what they have talked about so far.
- Close the discussion by summarizing the importance of effective management to run an enterprise as given in the Participant Handbook.

10.6.7: 20 Questions to Ask Yourself before Considering Entrepreneurship

Unit Objectives

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

- List the important questions that every entrepreneur should ask before starting an enterprise

Resources to be Used

- Participant Handbook
- Blank sheets of paper
- Pens

Ask

- Why do you want to become an entrepreneur?

Say

- It is very important to know why you want to become an entrepreneur. Your personal goals for becoming an entrepreneur play a key role in the success of your business. Your goals should be clear well before you start your business.
- Apart from the goals, the other aspects of business that you need to bear in mind are the potential problems that you may face to set-up, your areas of interest, and all the other dimensions of the business.
- Let's understand it better with the help of some questions that every entrepreneur should ask before starting their own business.
- Open the Participant Handbook section named '20 Questions to Ask Yourself Before Considering Entrepreneurship'. You have to answer the questions individually.
- Then, we will have a class discussion on all the questions.

Do

- Read out the questions one by one in front of all the participants.
- Participants have to answer all the one by one questions.
- Give the class 10-15 minutes to note down their answers.
- At the end of 15 minutes, open the discussion for all the questions.
- Moderate the discussion by focusing on the relevant points.
- Keep a check on time and don't let the discussion get sabotaged or lose track of time. Ensure all the questions are covered and discussed.

Summarize

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



Skill India
कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



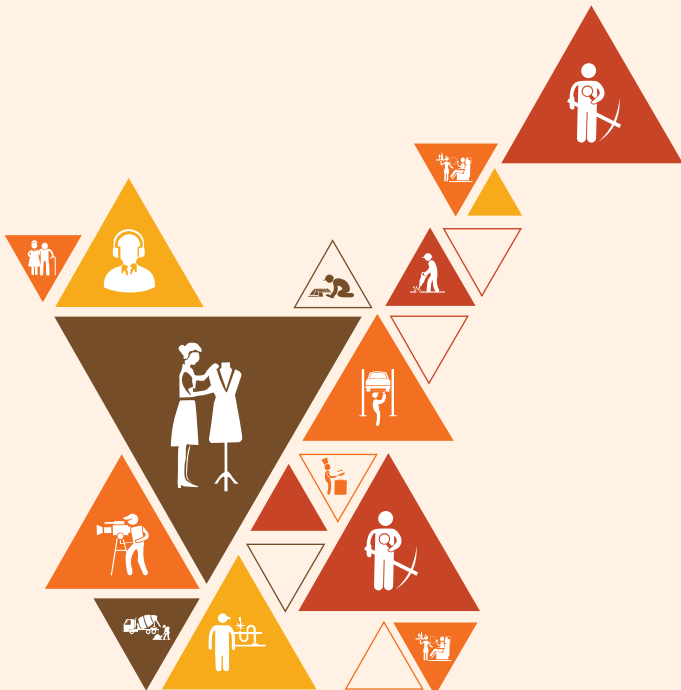
N · S · D · C
National
Skill Development
Corporation

Transforming the skill landscape



11. Annexures

Annexure I: Training Delivery Plan
Annexure II: Assessment Criteria



Annexure I

Training Delivery Plan

Training Delivery Plan			
Program Name:	Pneumatic Tyre Moulding Operator		
Qualification Pack Name & Ref. ID	Pneumatic Tyre Moulding Operator - RSC/Q0211		
Version No.	1.0	Version Update Date	17/05/2017
Pre-requisites to Training (if any)	Class VIII th passed		
Training Outcomes	<p>By the end of this program, the participants will be able to:</p> <ol style="list-style-type: none"> 1- Prepare Pneumatic Tyre Moulding Machine 2- Perform Pneumatic Tyre moulding 3- Perform Post Pneumatic Tyre Moulding Activities 4- Maintain Pneumatic Tyre Moulding Shop as per 5S guideline 5- Check quality of moulded Pneumatic Tyre and rectify the defects 6- Report and document about Pneumatic Tyre moulding 7- Escalate Problem to right authority 8- Develop entrepreneurship qualities 		

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
1	Introduction to Rubber & Tyre Industry						
	1.1	Getting familiarized	<p>At the end of this module, you will be able to:</p> <ol style="list-style-type: none"> 1- Get introduction of students 2- Build rapport with students 3- Create Rules for class 	NA	Group Activity: Contact Sharing	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos 	6 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
	1.2	Introduction to Rubber and Tyre Industry	1- Discuss the Rubber 2- Define types of Rubber 3- Describe Natural Rubber and process of extracting it from Rubber Tree 4- Explain Types of Natural Rubber 5- Explain Synthetic Rubber and types of common used Synthetic Rubber 6- Explain Reclaimed Rubber 7- Describe Different uses of Rubber 8- Discuss Rubber industry in India 9- Explain consumption of Rubber 10- Discuss about various Rubber bodies and Associations	NA	<ul style="list-style-type: none"> Facilitator led discussions Quiz Videos 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Samples – RSS sheets, Crepe Rubber, TSR Rubber, Synthetic Rubber, Reclaimed Rubber, Rubber Product – 20 nos., Tyre sample with sidewall coding, Tyre cut sections 	10 Hrs
	1.3	History of tyre industry and tyre industry in India	1- Discuss the History of Tyre development 2- Explain types of Tyre being sold in India 3- Describe the major tyre brands in India 4- Describe the ratio of Tyre sales in terms of vehicle Segment and customer segment	NA	<ul style="list-style-type: none"> Facilitator led discussions Quiz Videos 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Samples – RSS sheets, Crepe Rubber, TSR Rubber, Synthetic Rubber, Reclaimed Rubber, Rubber Product – 20 nos., 	10 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
			5- Describe the share of business of all major Tyre sellers in India			<ul style="list-style-type: none"> • Tyre sample with sidewall coding, Tyre cut sections 	
	1.4	Tyre Basics	<ol style="list-style-type: none"> 1- Explain what is Tyres 2- Describe the constituent material of a Tyre 3- Explain the Parts of Tyres 4- Define Types of Tyres being used 5- Describe the meaning of Sidewall coding of a Tyre 6- Describe the specification of Tyres 	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Quiz • Videos 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • Tyre sample with sidewall coding • Tyre cut sections 	10 Hrs
	1.5	Process of Tyre Manufacturing	<ol style="list-style-type: none"> 1- Explain the Tyre manufacturing process. 2- Define constituents of Compound for making Tyre. 3- Describe preparation of various parts of Tyre. 4- Define the Tyre Curing Process. 	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Quiz • Videos 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos 	20 Hrs
	1.6	Equipment used in Tyre Making	<ol style="list-style-type: none"> 1- Explain Equipment used in Tyre making 2- Describe various parts of Tyre making equipment 	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Quiz • Videos 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos 	18 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
	1.7	Job Role of a Pneumatic Tyre Moulding Operator	1- Explain the Job role of a Tyre Moulding Operator	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Quiz • Videos 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos 	10 Hrs
2	Prepare Pneumatic Tyre Moulding Machine						
	2.1	Tyre Moulding Machine and its Parts	1- Explain construction of Tyre Moulding Machine 2- Describe the details of Tyre Moulding Machine parts.	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Question & answer sessions • Videos • Demonstrations • Practical activities 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • tyre Moulding Machine, Tyre Mould, Green Tyre, Release Agent 	20 Hrs
	2.2	Machine Preparation and Tyre Moulding	1- Prepare Machine for Tyre Moulding. 2- Demonstrate the cleaning process of Tyre moulding machine. 3- Demonstrate the required mould loading in machine. 4- Demonstrate the mould cleaning after loading in machine. 5- Describe the process of arranging 'Green Tyre' for Moulding. 6- Define purpose of Release agent application in mould.	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Question & answer sessions • Videos • Demonstrations • Practical activities 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • tyre Moulding Machine, Tyre Mould, Green Tyre, Release Agent 	43 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
3	Performing Pneumatic Tyre Moulding Operation						
3.1	Startup Checks before Tyre Moulding	1- Demonstrate Machine checkup points before Tyre Moulding. 2- Demonstrate Control Panel checkup points before Tyre Moulding . 3- Demonstrate Mould checkup points before Tyre Moulding. 4- Discuss Importance of Mould Cleaning & Maintenance. 5- Describe General operating instructions before Tyre moulding. 6- Explain 'Green tyre' Inspection. 7- Describe preparation points before Tyre Moulding. 8- Explain steps involved in changing mould in Tyre Moulding Machine.	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Tyre Moulding Machine Green Tyre Tyre Mould Clamp Crane Machine and Mould cleaning Equipment, 	15 Hrs	
3.2	Operating Instruction for Tyre Moulding	1- Demonstrate the steps for performing Tyre Moulding. 2- Describe the Safety Precautions to be taken	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	23 Hrs	

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
			3- Discuss Do's and Don'ts for Tyre Moulding Operations. 4- Define Responsibilities of Tyre Moulding Operator			<ul style="list-style-type: none"> • Tyre Moulding Machine • Green Tyre 	
4	Perform Post Pneumatic Tyre Moulding Operation Activities						
4.1	Post Tyre Moulding Activities	1- Explain Post-Tyre Moulding activities 2- Describe the Quality issues in Tyre Moulding operations. 3- Define the Countermeasures to be taken on quality issues related to Tyre Moulding	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Question & answer sessions • Videos • Demonstrations • Practical activities 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • Cured Tyre, Tyre Finishing Tools – Flash removing tool, Scissor, etc., Tyre / Tyres with different moulding defects 	15 Hrs	
4.2	Disposal of Rejected Tyre	1- Explain challenges in Tyre disposal. 2- Describe Tyre recycling. 3- Describe the uses of recycled Tyre.	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Question & answer sessions • Videos • Demonstrations • Practical activities 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • Tyre / Tyres with different moulding defects 	6 Hrs	
5	Carry out Housekeeping in Rubber Product Manufacturing						
5.1	Need and Benefits of Housekeeping	1- Explain what is housekeeping. 2- Define importance of Housekeeping 3- Describe purpose of Housekeeping.	NA	<ul style="list-style-type: none"> • Facilitator led discussions • Question & answer sessions • Videos • Demonstrations 	<ul style="list-style-type: none"> • White board & Markers • Notes • Laptop/Slides + Projector • Videos • Different Cleaning Equipment 	8 Hrs	

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
			4- Explain benefits of Housekeeping		<ul style="list-style-type: none"> Practical activities 		
	5.2	'5S' Methodology of Housekeeping	1- Explain what is '5S' 2- Define each 'S' and its meaning	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Different Cleaning Equipment 	13 Hrs
6	Carry out Reporting and Documentation						
	6.1	Day to Day Activities Documentation	1- Explain what is documentation 2- Describe the importance of Documentation. 3- Define Purpose of Documentation 4- Explain Types of Documentation 5- Describe common Documentations used in Tyre Industry 6- Explain what is reporting 7- Describe importance of Reporting	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Sample of Documentations Sample of Reports Sample of Procedure Sample of Work Instructions 	10 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
	6.2	Organisation Procedure for Reporting and Documentation	1- Explain about Government Act and Bylaws 2- Describe about rules 3- Define meaning of Policies and Guidelines 4- Describe meaning of Procedure 5- Explain what is work instruction 6- Discuss Organisational Procedures for Reporting and Documentation Tyres	NA	<ul style="list-style-type: none"> Facilitator led discussions Quiz Videos 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Sample of Documentations Sample of Reports Sample of Procedure Sample of Work Instructions 	10 Hrs
	6.3	Communication in Organization	1- Define what is communication 2- Describe communication process 3- Explain problems in communication 4- Describe various communication barriers 5- Explain traits of Active Listening 6- Discuss points of good writing skill 7- Explain how to resolve conflict with team member	NA	<ul style="list-style-type: none"> Facilitator led discussions Quiz Videos 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	12 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
	6.4	Work Management	1- Decide priority of work required to be done 2- Describe how to select work to do from pending work	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	10 Hrs
7	Carry Out Quality Checks						
	7.1	Inspection Equipment for Tyre Inspection and Inspecting Tyre	1- Define need of Quality Control in Tyre Moulding 2- Identify and discuss Measuring equipment for Tyre Inspection 3- Discuss methodology of Problem solving 4- Describe implication of Tyre Defects 5- Perform Visual Inspection Moulding Tyre 6- Define various Quality defects in Tyre	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Inspection Tools – Vernier Caliper, Micrometer Rubber Hardness Tester Measuring Tape Tread Depth Gauge X-Ray Machine 	6 Hrs
	7.2	Defects in Tyre	1- Perform Visual Inspection Moulding Tyre 2- Define various Quality defects in Tyre	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Tyres with Quality defects 	17 Hrs

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
8	Health & Safety						
8.1	Hazards in Tyre Industry	1- Explain what is hazard 2- Identify Hazard in Tyre Industry 3- Describe Chemical hazard 4- Describe Physical hazard 5- Describe Ergonomic hazard	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	10 Hrs	
8.2	Health & Safety requirement for Tyre Industry	1- Explain the health and safety requirements for Tyre Industry 2- Discuss health and safety procedure of organisation	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	14 Hrs	
8.3	Tyre Moulding Safety Equipment	1- Explain what is PPEs 2- Discuss requirement of PPE 3- Identify different types of PPEs used in Rubber and Tyre Industry 4- Describe the purpose of various PPEs used in Rubber and Tyre Industry 5- Demonstrate the Use of different PPEs.	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos Sample of PPEs – Safety Goggle, Safety Shoes, Safety Gloves, Safety Hat, Mask, Earmuff 	10 Hrs	

Sl. No	Module Name	Session Name	Session Objectives	NOS Reference	Methodology	Training Tools/Aids	Duration
	8.4	Handling Fire and Other Emergencies	1- Define what is emergency 2- Describe various emergency situations in Industry 3- Describe common injuries in industry 4- Describe First Aid box and its constituents 5- Demonstrate how to handle Fire Emergencies 6- Demonstrate how to use a multi purpose Fire Extinguisher 7- Describe type and class of Fires 8- Describe suitable fire extinguisher as per fire type and class	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Demonstrations Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos First Aid Box Fire Extinguisher 	14 Hrs
9	Carry out Problem Identification and Escalation						
	9.1	Problem Identification and Escalating to Supervisor	1- Explain what is Problem 2- Describe how to identify Problem 3- Define Hierarchies 4- Discuss Hierarchy in tyre Industry 5- Explain how to escalate problem 6- Describe need for escalation	NA	<ul style="list-style-type: none"> Facilitator led discussions Question & answer sessions Videos Practical activities 	<ul style="list-style-type: none"> White board & Markers Notes Laptop/Slides + Projector Videos 	10 Hrs

Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Assistant Beauty Therapist	
Job Role	Pneumatic Tyre Moulding Operator
Qualification Pack	RSQ/Q0211
Sector Skill Council	Rubber Industry

Sr. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC
3	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training centre (as per assessment criteria below)
4	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training centre based on this criteria
5	To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS and overall 50% pass percentage in every QP

Assessable Outcomes	Assessment Criteria (PC)	Total Marks	Out of	Theory	Practical Skills
RSC/N1101 Prepare pneumatic tyre moulding machine	PC1. Ensure that press is clean	100	3	0	3
	PC2. Blow air to remove any condensate and foreign matter in the mould cavity		7	6	1
	PC3. Ensure that the correct mould is loaded		3	0	3
	PC4. Set parameters for the Bag-O-Matic /airbag type Presses (press timer, steam pressure and cure cycle steps), as per job card		7	6	1
	PC5. Apply mould release agent appropriately		7	6	1
	PC6. Warm up the press		3	0	3
	PC7. Follow equipment preparation process as per company requirements		7	6	1
	PC8. Ensure that no delays are caused as a result of improper preparation and failure to identify problems		2	0	2
	PC9. Ensure the mainline gauges and pressures are as per specification		2	0	2
	PC10. Ensure the calibration status of all measuring equipment and instruments and fit to use per quality standards followed by the plant		2	0	2
	PC11. Collect all green tyres required for the batch		6	5	1

	PC12. Ensure painting of green tyre paintings at inner and outer (if any) has been done properly with no puddles .	100	4	0	4
	PC13. Match the batch code of each green tyre with the batch code on the job schedule given by the planning department		7	6	1
	PC14. Ensure that each material is in the correct quantity		3	0	3
	PC15. Ensure, by visual inspection, that green tyre is of desired quality (free of contamination etc.)		3	0	3
	PC16. Ensure that no delays are caused as a result of improper preparation and failure to identify problems		7	5	2
	PC17. Ensure housekeeping in moulding area		7	5	2
	PC18. Use hand gloves while working on the moulding press to avoid contact with hot moulds		7	5	2
	PC19. Ensure that he does not put his hand inside the press while the press is closing		3	0	3
	PC20. Adhere to all other safety norms (like wearing shoes, gloves, safety goggles etc)		5	5	0
	PC21. Comply with health, safety, environment guidelines, regulations etc in accordance with organizational SOP		5	5	0
	Total		100	60	40
RSC/N1102 Perform pneumatic tyre moulding operation	PC1. Ensure, by visual inspection, that green tyre is of desired quality (free of contamination, uniformly painted with inside and outside paints and localized in the area where the painting is required etc.)		8	6	2
	PC2. Ensure that batch size of green tyre is as per specified quantity		8	6	2
	PC3. Plan batch sequence in shifts based on raw material availability/rejection to maximize output		3	1	2
	PC4. Check the green tyre – size, ply rating (PR), inner / outer painting etc		3	1	2
	PC5. Apply mould release agent , as required		5	2	3
	PC6. Load the “green” tyre in the mould with Center Post in position (in case of BOM Press)		5	2	3
	PC7. Place Serial No., PR strip (if any) in the mould cavity at particular location as the case may be		3	1	2
	PC8. Switch-on the press for cycle operation and ensure that press starts closing correctly		3	1	2
	PC9. Ensure that bladder starts blowing simultaneously while press is closing ,thus pressing the tyre on the mould wall (in case of BOM Press)		3	1	2

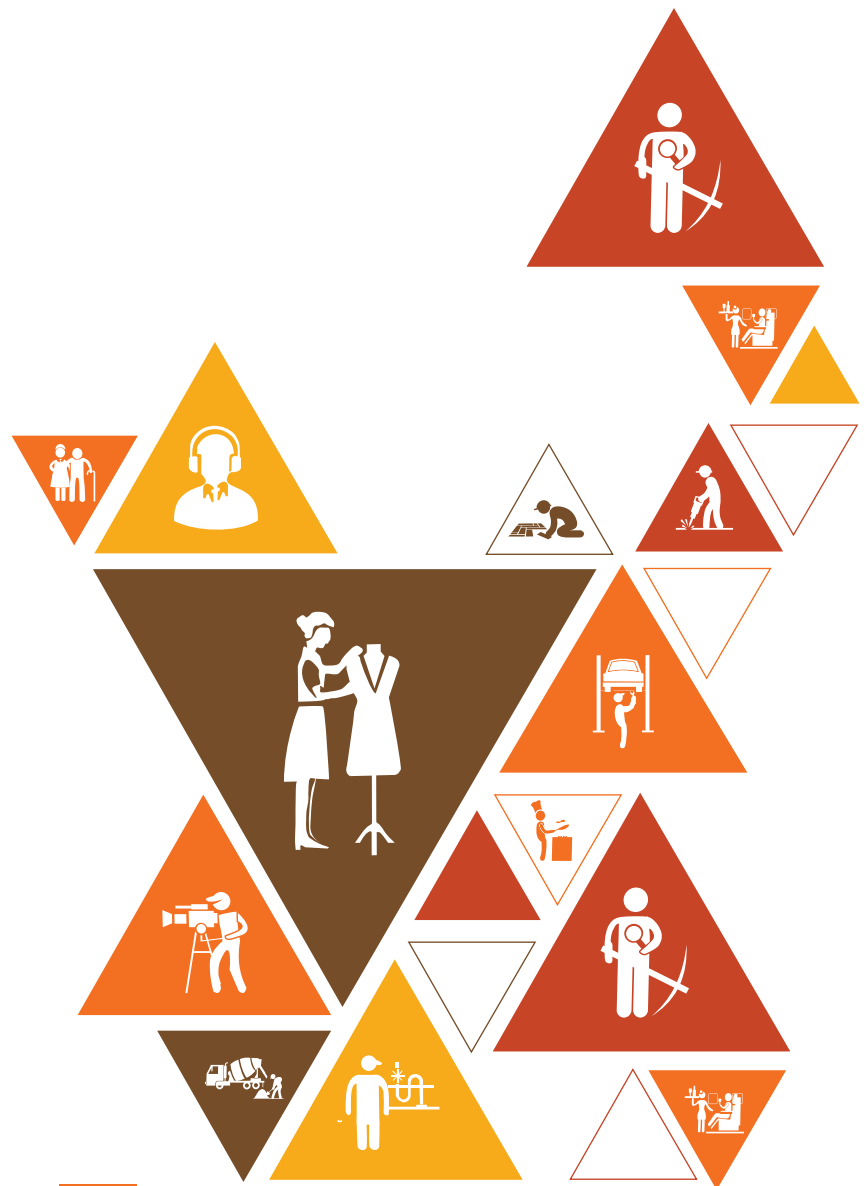
	PC10. Ensure that cure cycle has correct low, high , hot water and cold water pressure (LPS, HPS, HW & CW)		4	1	3
	PC11. Drain steam followed by hot water, hold and then cold water (in case of BOM Press/Nylon Carcass).		5	2	3
	PC12. In the case of air bag tupe curing the positioning of tyre is a must to ensure the correct location of airbag valve to facilitate the joining of steam line for filling steam inside airbag .		6	4	2
	PC13. Ensure that material wastage is within tolerance limits		2	0	2
	PC14. Ensure that no rework or rejection is generated		2	0	2
	PC15. Match the quality of output to company's product requirements		3	1	2
	PC16. Meet production quantity targets set for the operation	100	3	1	2
	PC17. Follow work instructions as laid down by the company		3	1	2
	PC18. Avoid skin contact with hot tyres and moulds		6	4	2
	PC19. Handle the hot tyre coming out of the press appropriately		6	4	2
	PC20. Ensure that he does not put his hand inside the press while the press is closing		7	3	4
	PC21. Use hand gloves while working on the moulding press		5	3	2
	PC22. Adhere to all other safety norms (like wearing shoes, gloves, safety goggles etc)		4	4	0
	PC23. Comply with health, safety, environment guidelines, regulations etc in accordance with organizational SOP		3	3	0
		Total	100	50	50
RSC/N1103 Perform post-pneumatic tyre moulding operation activities	PC1. Follow work instructions as laid down by the company		3	1	2
	PC2. Remove the tyre manually, if on completion of cure cycle, the tyre does not pop up automatically out of the press		3	1	2
	PC3. Roll the tyre and put on PCI Unit, apply air pressure and cool it for specified time pressure		5	2	3
	PC4. Remove tyre from PCI rings after required PCI time is over		5	2	3
	PC5. Inspect tyre for any visual defect		3	1	2
	PC6. Trim the vents and flashes of the tyre if required		5	3	2
	PC7. Handover the equipment to the next operator in clean and goodcondition		4	2	2
	PC8. Dispose off waste material as per waste disposal procedures laid down by the company		5	3	2
	PC9. Carry out disposal of waste material safely		5	3	2

	PC10. Form batch size as per company specifications		5	3	2	
	PC11. Carry out batch marking for the tyres removed out the PCI unit		6	3	3	
	PC12. Carry out batch marking as per instructions laid down by the company (in terms of weight, colour etc).		6	3	3	
	PC13. Send sample of specified product to lab for testing, if warranted		5	3	2	
	PC14. Send sample in specified quantity to lab for testing		5	3	2	
	PC15. Send sample in the specified form to lab for testing		5	3	2	
	PC16. Send the remaining material to the designated storage area	100	5	3	2	
	PC17. Follow work instructions as laid down by the company		4	2	2	
	PC18. Avoid skin contact with hot tyres and moulds		4	2	2	
	PC19. Handle the hot tyre coming out of the press appropriately		3	1	2	
	PC20. Use hand gloves while working on the moulding press		4	2	2	
	PC21. Ensure that he does not put his hand inside the press while the press is closing		4	2	2	
	PC22. Adhere to all other safety norms (like wearing shoes, gloves, safety goggles etc)		4	2	2	
	PC23. Comply with health, safety, environment guidelines, regulations etc in accordance with organizational SOP		4	2	2	
			Total	100	50	50
RSC/N5001 Carry out housekeeping in rubber product manufacturing	PC1. Inspect the area while taking into account various surfaces			3	3	0
	PC2. Identify the material requirements for cleaning the areas inspected, by considering risk, time, efficiency and type of stain			3	3	0
	PC3. Ensure that the cleaning equipment is in proper working condition			3	3	0
	PC4. Select the suitable alternatives for cleaning the areas in case the appropriate equipment and materials are not available and inform the appropriate person			3	3	0
	PC5. Plan the sequence for cleaning the area to avoid re-soiling clean areas and surfaces		3	3	0	
	PC6. Inform the affected people about the cleaning activity		2	2	0	
	PC7. Display the appropriate signage for the work being conducted		3	3	0	
	PC8. Ensure that there is adequate ventilation for the work being carried out		3	3	0	

	PC9. Wear the personal protective equipment required for the cleaning method and materials being used	100	3	3	0
	PC10. Use the correct cleaning method for the work area, type of soiling and surface		3	3	0
	PC11. Carry out cleaning activity without disturbing others		3	3	0
	PC12. Deal with accidental damage, if any, caused while carrying out the work		3	3	0
	PC13. Report to the appropriate person any difficulties in carrying out your work		3	3	0
	PC14. Identify and report to the appropriate person any additional cleaning required that is outside one's responsibility or skill		3	3	0
	PC15. Ensure that there is no oily substance on the floor to avoid slippage		9	3	6
	PC16. Ensure that no scrap material is lying around		9	3	6
	PC17. Maintain and store housekeeping equipment and supplies		3	3	0
	PC18. Follow workplace procedures to deal with any accidental damage caused during the cleaning process		3	3	0
	PC19. Ensure that, on completion of the work, the area is left clean and dry and meets requirements		8	2	6
	PC20. Return the equipment, materials and personal protective equipment that were used to the right places making sure they are clean, safe and securely stored		3	3	0
	PC21. Dispose the waste garnered from the activity in an appropriate manner		9	3	6
	PC22. Dispose of used and un-used solutions according to manufacturer's instructions, and clean the equipment thoroughly		9	3	6
	PC23. Maintain schedules and records for housekeeping duty		3	3	0
	PC24. Replenish any necessary supplies or consumables		3	3	0
		Total	100	70	30
RSC/N5002 Carry Out Reporting And Documentation	PC1. Report data/problems/incidents as applicable in a timely manner		12	8	4
	PC2. Report to the appropriate authority as laid down by the company		12	8	4
	PC3. Follow reporting procedures as prescribed by the company		12	8	4
	PC4. Identify documentation to be completed relating to one's role		10	6	4
	PC5. Record details accurately an appropriate format		16	6	10
	PC6. Complete all documentation within stipulated time according to company procedure		14	4	10

	PC7. Ensure that the final document meets with the requirements of the persons who requested it or make any amendments accordingly		6	4	2
	PC8. Make sure documents are available to all appropriate authorities to inspect		6	4	2
	PC9. Respond to requests for information in an appropriate manner whilst following organizational procedures		6	6	0
	PC10. Inform the appropriate authority of requests for information received		6	6	0
		Total	100	60	40
RSC/N5003 Carry Out Quality Checks	PC1. Ensure that total range of checks are regularly and consistently performed	100	24	10	14
	PC2. Use appropriate measuring instruments, equipment, tools, accessories etc ,as required		24	10	14
	PC3. Identify non-conformities to quality assurance standards		6	4	2
	PC4. Identify potential causes of non-conformities to quality assurance standards		5	3	2
	PC5. Identify impact on final product due to non-conformance to company standards		5	3	2
	PC6. Evaluating the need for action to ensure that problems do not recur		6	4	2
	PC7. Suggest corrective action to address problem		5	3	2
	PC8. Review effectiveness of corrective action		5	3	2
	PC9. Interpret the results of the quality check correctly		4	4	0
	PC10. Take up results of the findings with QC in charge/appropriate authority.		3	3	0
	PC11. Take up the results of the findings within stipulated time		3	3	0
	PC12. Record of results of action taken		3	3	0
	PC13. Record adjustments not covered by established procedures for future reference		3	3	0
	PC14. Review effectiveness of action taken		2	2	0
	PC15. Follow reporting procedures where the cause of defect cannot be identified		2	2	0
		Total	100	60	40
RSC/N5004 Carry Out Problem Identification And Escalation	PC1. Identify defects/indicators of problems		7	4	3
	PC2. Identify any wrong practices that may lead to problems		6	3	3
	PC3. Identify practices that may impact the final product quality		6	3	3
	PC4. Identify if the problem has occurred before		5	3	2

PC5. Identify other operations that might be impacted by the problem	100	6	4	2	
PC6. Ensure that no delays are caused as a result of failure to escalate problems		5	3	2	
PC7. Take appropriate materials and sample, conduct tests and evaluate results to establish reasons to confirm suspected reasons for non-conformance (where required)		8	5	3	
PC8. Consider possible reasons for identification of problems		8	5	3	
PC9. Consider applicable corrections and formulate corrective action		3	3	0	
PC10. Formulate action in a timely manner		3	3	0	
PC11. Communicate problem/remedial action to appropriate parties		7	5	2	
PC12. Take corrective action in a timely manner		2	2	0	
PC13. Take corrective action for problems identified according to the company procedures		2	2	0	
PC14. Report/document problem and corrective action in an appropriate manner		8	5	3	
PC15. Monitor corrective action		2	2	0	
PC16. Evaluate implementation of corrective action taken to determine if the problem has been resolved		2	2	0	
PC17. Ensure that corrective action selected is viable and practical		2	2	0	
PC18. Ensure that correct solution is identified to an identified problem		2	2	0	
PC19. Take corrective action for problems identified according to the company procedures		1	1	0	
PC20. Ensure that no delays are caused as a result of failure to take necessary action		1	1	0	
PC21. Escalate problem as per laid down escalation matrix		4	3	1	
PC22. Escalate the problem within stipulated time		4	3	1	
PC23. Escalate the problem in an appropriate manner		3	2	1	
PC24. Ensure that no delays are caused as a result of failure to escalate problems		3	2	1	
Total			100	70	30
Grand Total		700	700	420	280
Percentage Weightage:				60%	40%
Minimum Pass% to Qualify :				60%	





Skill India

कौशल भारत - कुशल भारत



सत्यमेव जयते
GOVERNMENT OF INDIA
MINISTRY OF SKILL DEVELOPMENT
& ENTREPRENEURSHIP



N.S.D.C.
National
Skill Development
Corporation

Transforming the skill landscape



RSDC

RUBBER SKILL DEVELOPMENT COUNCIL

Address: PHD House, 4th Floor, Siri Fort Institutional Area,
New Delhi - 110016, India

Email: info@rsdcindia.in

Web: rsdcindia.in

Phone: 011-41009347-48

CIN No.: 00000000

Price:



978-1-111-22222-45-7