Facilitator Guidebook

Ergonomic Safety Steward

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Ergonomics Safety Steward

Sector:- Cross Sectoral

Sub-Sector:- Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Chemicals & Petrochemicals, and others.

Occupation:- Occupational Safety Health & Environment (OSHE) Engineering & Management

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The Facilitator Guidebook for **Ergonomic Safety Steward**, **SSD/Q0107**, developed by the **Safety Skill Development Foundation (SSDF),** reflects our commitment to industry requirement for the job role, best practices in the profession, quality training requirement, regulatory compliances, workplace safety, health and sustainable practices. This guide is enriched with insights from **Subject Matter Experts (SMEs), trainers, and industry professionals**, ensuring its relevance to real-world applications.

We extend our special thanks to **CORE-EHS Solutions Pvt Ltd** for their invaluable expertise and support in developing course materials, significantly enhancing the safety and quality aspects of this guide.

Our gratitude also goes to trainers, assessors, industry experts, government bodies, and sector skill councils for their contributions toward advancing occupational safety across industries, including Hydrocarbon, Iron & Steel, Mining, Power, Automotive, Construction, Chemicals & Petrochemicals, and more.

The qualification is aligned with **NSQF** and this guide supports the **Skill India** initiative and is dedicated to trainers committed to excellence in skill development. SSDF welcomes feedback for continuous improvement.

Disclaimer

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About this Guide Book

The increasing focus on safety across various industries is driving a surge in the demand for qualified Ergonomics Safety Steward. This heightened need is resulting in a greater requirement for trained professionals in the field. As a result, there is an escalating necessity for trainers to prepare individuals with the essential skills to become competent Ergonomics Safety Steward.

This Facilitator Guide is designed for providing skill training and /or upgrading the knowledge level of the Trainees to take up the job of an "Trainer" in the Cross Sectoral Sector.

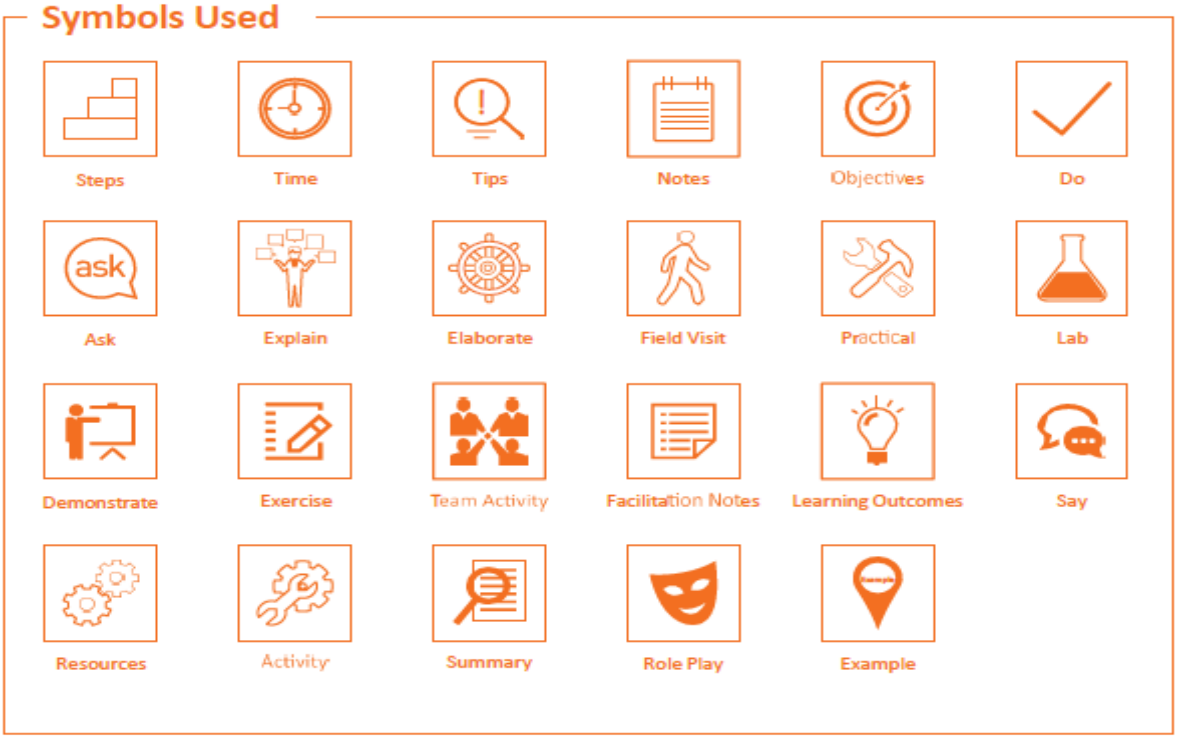
This Facilitator Guide is designed based on the Qualification Pack (QP) under the National Skill Qualification

framework (NSQF) and it comprises of the following National Occupational Standards (NOS)/topics and additional topics.

1. **SSD/VSQ/N0126: Ergonomics Hazard at Workplace**
2. **SSD/VSQ/N0127: Evaluation of risk associated with Ergonomic hazards**
3. **SSD/VSQ/N0128: Hazard Identification & Risk Assessment**
4. **SSD/VSQ/N0129: Ergonomic Safety Training programs**
5. **SSD/VSQ/N0104: Plan, Organize and Emergency protocols**
6. **DGT/VSQ/N0102: Employability Skills (60 Hours)**

The Ergonomics Safety Steward Facilitator Guidebook provides full information for the trainer to help engage participants, identify the needs of the training, and provide key concepts about Ergonomics Safety. This way, facilitators can include all relevant information and accomplish training objectives in the allocated time. Every unit is opened with learning objectives aligned to the NOS to enable facilitators to know the direction to take while offering the training. The guidebook also details how symbols are used, adding another layer of understanding on the part of the trainer as he or she prepares for and delivers effective safety audit training.

Symbols Used



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Contents

1. Unit 1 Introduction 6
2. Unit 2 NOS 1: SSD/VSQ/N0126: Ergonomics Hazard at Workplace 10
3. Unit 3 NOS 2: SSD/VSQ/N0127: Evaluation of risk associated with 19
Ergonomic hazards 19
4. Unit 4 NOS 3: SSD/VSQ/N0128: Hazard Identification & Risk Assessment 27
5. Unit 5 NOS 4: SSD/VSQ/N0129: Ergonomic Safety Training programs 35
6. Unit 6 NOS 5: SSD/VSQ/N0104: Plan, Organize and Emergency protocols 43
7. Unit 7 NOS 6: Employability Skills (DGT/VSQ/N0102) 53

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1. Unit 1 Introduction

1.1. Key Learning Outcomes

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

- Describe Hydrocarbon, Iron & steel, Mining, Power, Automotive, Construction, Chemicals & Petrochemicals
- List the roles and responsibilities of Ergonomics Safety Steward

1.2. Unit 1.1: Overview of the Industry

1.2.1. Unit Objectives

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

1. Describe about the Hydrocarbon sector in India
2. Describe about the Iron & Steel sector in India
3. Describe about the Mining sector in India
4. Describe about the Power sector in India
5. Describe about the Automotive sector in India
6. Describe about the Construction sector in India
7. Describe about the Chemicals & Petrochemicals in India
8. Describe how each sub-sector contributes to skill development
9. Compare the job potential of all sub-sectors

1.2.2. Resources to be used

- Available objects such as Projection screen, whiteboard, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Attendance sheet
- Activities (role plays and games)

1.2.3. Ask

- Ask the participants to share their expectations from the program
- Ask them to tell what they know about the Hydrocarbon sector, Iron & Steel sector, Mining sector, Power sector, Automotive sector, Construction sector, Chemicals & Petrochemicals
- What is the ‘Make-in-India’ initiative?

1.2.4. Do

- Introduce yourself to the participants.
- Give an overview of the program to the participants - duration of the program, objective etc.
- Give an overview of the Hydrocarbon sector, Iron & Steel sector, Mining sector, Power sector, Automotive sector, Construction sector, Chemicals & Petrochemicals sector in India.

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1.2.5. Explain

List the major segments in the Hydrocarbon sector, Iron & Steel sector, Mining sector, Power sector, Automotive sector, Construction sector, Chemicals & Petrochemicals sector

1.2.6. Tips

- Go slow with information flow with participants.
- Observe each participant's body language.
- Keep a positive and supportive approach towards the candidates

1.2.7. Activity: Team Spot

- Separate the class in 2 different teams.
- Each team will be assigned with 3 different sector topics
- Ask them to present the given topics team after team, and state examples individually to explain

1.2.8. Notes for Facilitation

- Revise the important points discussed in this unit.
- Clear the doubts of the students, if any. Encourage them to ask questions.
- Discuss the question with the class and answer their queries satisfactorily.
- Help participants identify how to apply the skills taught in the course to their work
- Praise participants and the group on improving their performance and developing new skills.
- Encourage participants to move through the initial difficulties of learning new skills, by focusing
- on steps in their progress and the importance of what they are learning to do.

1.2.9. Summary

- **Hydrocarbon:** The hydrocarbon sector involves the extraction, refinement, and distribution of oil and natural gas. This sector plays a crucial role in energy production and the global economy, providing fuel and raw materials for various industries.
- **Iron & Steel:** The iron and steel sector is fundamental to industrial development. It focuses on producing metal alloys used in manufacturing, construction, and infrastructure. This sector is key to building economies and supporting technological advancements.
- **Mining:** The mining industry is concerned with extracting valuable minerals and materials from the earth. It provides essential raw materials for industries like construction, energy production, and manufacturing.
- **Power:** The power sector includes the generation, transmission, and distribution of electricity. This sector is vital to economic development and daily life, powering homes, businesses, and industries through a variety of sources such as coal, natural gas, renewables, and nuclear energy.
- **Automotive:** The automotive sector involves the design, production, and distribution of motor vehicles, including cars, trucks, and motorcycles. It is a significant driver of technological innovation and economic activity globally.

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- **Construction**: The construction sector is involved in the building and infrastructure development of residential, commercial, and industrial projects. It supports urbanization and economic development by creating critical infrastructure such as roads, bridges, and buildings.
- **Chemicals & Petrochemicals**: This sector deals with the production of chemicals, fertilizers, and petrochemical products derived from petroleum. It plays a crucial role in manufacturing various goods such as plastics, pharmaceuticals, and industrial chemicals.
- A Safety Auditor assesses workplace safety practices, identifies hazards, ensures compliance with safety regulations, and recommends improvements to prevent accidents and ensure a safe working environment.

1.2.10. Exercise

1. Which of following is the most common cause of accidents in hydrocarbon sector?

A. Equipment Failure
B. Human Error
C. Natural Disasters
D. Fire

2. Routine inspections and maintenance are crucial for preventing accidents in oil and gas pipeline.(T/F)
3. Which of the following is major hazard in steel industry?

A. Noise Pollution
B. High Temperature
C. Exposure to Hazardous Substance
D. All the above

4. Proper PPE is essential for Workers handling molten metal.(T/F)
5. What is most common cause of fatalities in underground mines?

A. Rock Falls
B. Explosion
C. Flooding
D. Electrical Hazards

1.3. Unit 1.2: Roles and Responsibilities of a Ergonomics Safety Steward

1.3.1. Unit Objectives

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

1.Identify roles and responsibilities of Ergonomics Safety Steward

2.Identify essential skills of Ergonomics Safety Steward

1.3.2. Resources to be used

- Available objects such as Projection screen, whiteboard, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Attendance sheet
- Activities (role plays and games)

1.3.3. Ask

- Ask the participants to share their expectations from the program

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1.3.4. Do

- Give a brief introduction on the job description of Ergonomics Safety Steward outlining their personal attributes to the participants
- Provide the participants with a List of Roles and Responsibilities of Ergonomics Safety Steward
- Talk about the skills and knowledge which are essential to become a Ergonomics Safety Steward

1.3.5. Explain

Describe about the roles and responsibility of Ergonomics Safety Steward

1.3.6. Tips

- Go slow with information flow with participants.
- Observe each participant's body language.
- Keep a positive and supportive approach towards the candidates

1.3.7. Activity: Team Spot

- Separate the class in 2 different teams.
- Each team will be assigned with topics - Roles and responsibilities of Ergonomics Safety Steward
- Ask them to present the given topics team after team, and state examples individually to explain

1.3.8. Notes for Facilitation

- Revise the important points discussed in this unit.
- Clear the doubts of the students, if any. Encourage them to ask questions.
- Discuss the question with the class and answer their queries satisfactorily.
- Help participants identify how to apply the skills taught in the course to their work
- Praise participants and the group on improving their performance and developing new skills.
- Encourage participants to move through the initial difficulties of learning new skills, by focusing
- on steps in their progress and the importance of what they are learning to do.

1.3.9. Summary

- **Assessment and Evaluation**: They conduct regular ergonomic assessments of workstations, equipment, and processes to identify potential risks, such as repetitive stress injuries or poor posture, and recommend improvements.
- **Education and Training**: They provide training and awareness programs to employees about proper ergonomic practices, including posture, workstation setup, and safe lifting techniques.
- **Implementation of Ergonomic Solutions**: They work with management to introduce ergonomic solutions, such as adjustable chairs, desks, or specialized equipment, to reduce physical strain on employees.
- **Monitoring Compliance:** They ensure that ergonomics guidelines and safety protocols are consistently followed by conducting inspections and addressing any issues or non-compliance.
- **Incident Investigation:** In the event of work-related injuries or discomfort, the Ergonomics Safety Steward investigates the root cause and suggests corrective measures.

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- **Collaboration with Other Departments:** They often work closely with safety managers, HR, and other stakeholders to align ergonomic initiatives with overall workplace safety strategies.
- **Continuous Improvement:** They stay updated on the latest ergonomics research, tools, and industry best practices to ensure the workplace evolves in line with current standards.

1.3.10. Exercise

1. **What is the primary responsibility of an Ergonomics Safety Steward?**

a) To enforce workplace policies

b) To ensure compliance with safety regulations only

c) To assess, implement, and promote ergonomic safety in the workplace

d) To manage payroll and employee attendance

2. **Who does an Ergonomics Safety Steward collaborate with to ensure a safe working environment?**

a) Only the HR department

b) Management and safety teams

c) External contractors only

d) The marketing department

3. **True or False: The primary role of an Ergonomics Safety Steward is to identify and correct ergonomic risks in the workplace.**
4. **True or False: An Ergonomics Safety Steward does not need to stay updated on ergonomic research and trends**.
5. **True or False: Providing ergonomics training to employees is part of an Ergonomics Safety Steward's responsibilities**.
6. Ergonomics Safety Stewards collaborate with _____ to implement ergonomic solutions and improve workplace safety.
7. An Ergonomics Safety Steward helps reduce _____ injuries by ensuring employees use ergonomically designed tools and maintain good posture.

2. Unit 2 NOS 1: SSD/VSQ/N0126: Ergonomics Hazard at Workplace

2.1. Key Learning Outcomes

At the end of this module, the trainees will be able to

- Understand ergonomics basic principle and its application.
- Identify ergonomic hazards in workstations, equipment, tools, and processes.
- Evaluate the risk levels associated with ergonomic hazards.
- Understand factors to reduce musculoskeletal disorders (MSDs)

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2.2. Unit 2.1: Ergonomics Basic Principles

2.2.1. Unit Objectives

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

- To understand the basic concept of ergonomics, its hazards, and why ergonomics is essential in keeping the workplace safe.
- Acknowledge the moral and financial implications of ergonomics at the workplace, including its role in promoting worker well-being and reducing costs related to injuries and absenteeism.
- Demonstrate the ability to apply ergonomic principles to design a safe and comfortable workplace by considering factors such as tools, equipment, and workstation layout.
- Understand how the principles of ergonomics contribute to worker health and productivity.

2.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

2.2.3. Say

- Describe about basic concept of ergonomics, its hazards
- Why ergonomics is essential?
- Describe about moral and financial implications of ergonomics at the workplace
- Describe about ergonomic principles to design a safe and comfortable workplace by considering factors such as tools, equipment, and workstation layout.
- How the principles of ergonomics contribute to worker health and productivity

2.2.4. Explain

- Describe about basic concept of ergonomics, its hazards
- Why ergonomics is essential?
- Describe about moral and financial implications of ergonomics at the workplace
- Describe about ergonomic principles to design a safe and comfortable workplace by considering factors such as tools, equipment, and workstation layout.
- How the principles of ergonomics contribute to worker health and productivity

2.2.5. Activity

Divide the class into small groups (3-5 participants).

Assign each group a specific ergonomics hazard (e.g., repetition, awkward posture, manual handling).

Ask each group to:

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Define their assigned hazard.

Discuss how it can lead to injuries or discomfort.

Identify common jobs or tasks where this hazard is prevalent.

After that each group present their findings to the rest of the class.

2.2.6. Notes for Facilitation

- Summarize the important points and terms explained in the session.
- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions.

2.2.7. Summary

1. **Understanding Ergonomics and Associated Hazards**

- Ergonomics is the study of and implementation of designs that reduce physical strain and prevent injuries in the workplace.
- Associated hazards include repetitive movements, awkward postures, improper workstation setup, and physical stress.
- The moral importance of ergonomics lies in preventing injuries and improving employees' well-being.
- Financial significance Reduces the cost of injury at the workplace, absenteeism, and health care.
- A safe ergonomic working place is very important to the reduction of the risk of injury while ensuring that employees are effective and comfortable in performing tasks.

2. **Principles of Ergonomics and Their Importance**

- They are expected to improve employee well-being by reducing strain, discomfort, and injury risks.
- Ergonomics aims to create an environment in which the tools fit as well as the workstations to the needs of the worker, thus improving performance and reducing the likelihood of physical disorders.
- Implements applications of ergonomic principles included in the right postures, the reduction of repetitive actions, using the appropriate tool, and lessening of physical exertion.

3. **The Application of Ergonomic Principles in Workplace Design**

- All aspects of ergonomics should, therefore, be integrated into design for workplaces, tools, and equipment that are to be ergonomically comfortable and less strained.
- These ways would include ergonomic principles in adapting the work environment, such as adjusting desk height, chair support, ergonomic keyboard placement, and equipment handhold designs.
- Application of ergonomics in design would provide not only the comfort and safety of employees but also improved productivity while lessening the number of days lost due to absence from injuries.

Summing up, knowledge and practice of ergonomic principles are critical for developing a safe, productive, and healthy workplace. Such competency leads to reduced workplace injuries, higher worker satisfaction, and improved overall organizational performance.

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2.2.8. Exercise

1. What is the primary goal of ergonomics in the workplace?

a) To improve work efficiency only

b) To reduce physical strain and prevent injuries

c) To increase work hours

d) To promote technological advancement

2. Which of the following is an ergonomic hazard at the workplace?

a) Poor lighting

b) Ergonomically designed tools

c) Frequent breaks

d) Adjustable desks

3. True or False: The main goal of ergonomics is to increase physical strain on workers to improve performance

4. True or False: Ergonomics only focuses on improving the design of tools and equipment, not the work environment

5. True or False: A key financial benefit of ergonomics is reducing costs associated with workplace injuries and absenteeism.

6. Ergonomic principles promote the use of proper _____ to reduce discomfort and fatigue during work tasks.

7. In ergonomic design, it is important to create adjustable _____ and equipment to ensure comfort and Reduce strain.

2.3. Unit 2.2 Ergonomics Hazards

2.3.1. Unit Objectives

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

- Recognize common ergonomics hazards in the workplace, such as repetition, awkward posture, stationary positions, noise, and work stress.
- Understand how equipment layout, manual handling (lifting, pushing, pulling), confined spaces, forceful motions, direct pressure, vibration, and extreme temperatures contribute to ergonomic risks.
- Identify ergonomics hazards related to systems and computer programs, workplace design, lighting, and cold temperatures.
- Understand how these environmental and system factors can raise the risk of discomfort and injury.

2.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual

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- Projection screen and PowerPoint presentations.
- Activities (role plays)

2.3.3. Say

- Describe ergonomics hazards
- Describe about how equipment layout, manual handling (lifting, pushing, pulling), confined spaces, forceful motions, direct pressure, vibration, and extreme temperatures contribute to ergonomic risks.
- Describe ergonomics hazards related to systems and computer programs, workplace design, lighting, and cold temperatures.
- Describe how these environmental and system factors can raise the risk of discomfort and injury

2.3.4. Explain

- Describe ergonomics hazards
- Describe about how equipment layout, manual handling (lifting, pushing, pulling), confined spaces, forceful motions, direct pressure, vibration, and extreme temperatures contribute to ergonomic risks.
- Describe ergonomics hazards related to systems and computer programs, workplace design, lighting, and cold temperatures.
- Describe how these environmental and system factors can raise the risk of discomfort and injury

2.3.5. Activity

Divide the class into small groups

Give each group a workplace scenario worksheet (you can use examples like office environments, manufacturing settings, or healthcare workspaces). Each worksheet should describe a workplace setting with potential hazards, such as:

A desk setup with a poorly positioned monitor and keyboard.

A factory worker repeatedly lifting heavy boxes.

An office worker sitting in the same position for long periods.

Ask each group to:

Identify ergonomic hazards in the given scenario (e.g., awkward posture, repetition, poor lighting, etc.).

Discuss the potential consequences of these hazards on the workers (e.g., back pain, eye strain, fatigue).

Suggest ergonomic improvements or solutions to reduce the hazards (e.g., adjusting workstation height, providing ergonomic chairs, rotating tasks to reduce repetition).

After that each group present their findings and solutions to the class.

2.3.6. Notes for Facilitation

- Summarize the important points and terms explained in the session.
- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions.

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2.3.7. Summary

1. **Physical Hazards**

- Repetition: The repetition of the same task over and over again, without adequate rest, leads to overuse injuries like repetitive strain injuries (RSIs).
- Awkward Posture: Prolonged poor posture such as bending, twisting, or overreaching causes strain on muscles and joints and may lead to musculoskeletal disorders (MSDs).
- Stationary Position: Staying in the same position for long periods, especially in seated or standing postures, may lead to discomfort and may be associated with back, neck, and leg pain.
- Noise: High levels of noise in the workplace will eventually cause stress and hearing damage.
- Work Stress: High workloads, close deadlines, and other factors will lead to mental and physical fatigue, which impacts worker health.

2. **Hazards Associated with Equipment and Manual Handling**

- Equipment Layout: Poor design of tools and machinery may lead to workers being in uncomfortable positions, thus exposing them to potential injury.
- Manual Handling: The handling of heavy loads with lifting, pushing, or pulling may put strain on the back and muscles due to improper techniques.
- Work in confined spaces. Tight or confined spaces reduce room for movement, and may increase the likelihood of straining or injury.
- Use of excessive force to carry out tasks. Examples are heavy lifting and repetitive pushing, which might lead to joint or muscle injuries.
- Direct Pressure: Severe pressure on certain areas of the body, for example, sitting on a cold floor, reduces blood circulation and causes pain.
- Vibration: Equipment or equipment that vibrates leads to hand-arm vibration syndrome (HAVS) and causes numbness and pain in the hands and arms.
- Extreme Temperature: Both heat and cold can affect the employee's performance and health leading to heat stress or other cold-induced injuries such as frostbite.

3. **Environmental and System Hazards**

- Systems and Computer Programs: Poor design of computer systems or software could result in repetitive stress, eye strain, and mental fatigue especially when workers are subjected to the complexity of long computer programs.
- The poorly designed workplace, an example for this is in having chairs which cannot be adjusted nor is the desk correct. Thus, causing awkward poses and exertions.
- Lighting: Poor or intense lighting causes eye strain, headaches, and decreased productivity.
- Cold Temperature: Working in cold environments can be very uncomfortable and increase the chances of cold-related injuries such as hypothermia or frostbite.

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Workers and employers can reduce the risk of injury and stress, as well as enhance overall well-being and productivity at work, by understanding these ergonomic hazards and taking proactive steps to minimize them. The creation of a safe and comfortable working environment relies on ergonomic interventions, which include adjusting equipment, improving workstation design, and providing proper training.

2.3.8. Exercise

1. Which type of workplace hazard is caused by prolonged exposure to awkward postures?

a) Visual strain

b) Musculoskeletal disorders (MSDs)

c) Hearing damage

d) Skin irritation

2. Which of the following is a key ergonomic risk factor when using a computer for extended hours?

a) Direct pressure

b) Repetitive motions and poor posture

c) Extreme temperatures

d) Vibration

3. True or False: A poorly designed workstation layout, such as an uncomfortable chair or improper desk height, can lead to ergonomic hazards.

4. True or False: Vibration from machinery and tools can lead to hand-arm vibration syndrome (HAVS), a condition related to ergonomics.

5. True or False: Noise at the workplace is primarily an ergonomic hazard related to hearing loss and does not cause musculoskeletal disorders.

6. When working in confined spaces, workers may experience _____ due to restricted movement and prolonged strain on certain body parts.

7. Tasks that require _____ motion, such as heavy lifting, can strain muscles and joints, leading to musculoskeletal disorders.

2.4. Unit 2.3: Musculoskeletal Disorders (MSDs)

2.4.1. Unit Objectives

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

- Understand musculoskeletal disorders, inflammatory mechanism behind development of musculoskeletal disorders, chronic and acute
- Identify jobs/tasks associated with MSDs hazards.
- Recognize MSDs symptoms and risk factors; muscle weakness or discomfort, tingling or numbness; swelling, inflammation, stiffness, pain or burning sensation.

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2.4.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

2.4.3. Say

- Describe about musculoskeletal disorders, inflammatory mechanism behind development of musculoskeletal disorders, chronic and acute
- Describe jobs/tasks associated with MSDs hazards
- Describe MSDs symptoms and risk factors; muscle weakness or discomfort, tingling or numbness; swelling, inflammation, stiffness, pain or burning sensation

2.4.4. Explain

- Describe about musculoskeletal disorders, inflammatory mechanism behind development of musculoskeletal disorders, chronic and acute
- Describe jobs/tasks associated with MSDs hazards
- Describe MSDs symptoms and risk factors; muscle weakness or discomfort, tingling or numbness; swelling, inflammation, stiffness, pain or burning sensation

2.4.5. Activity

Recognize MSD hazards and tasks associated with these disorders.

Divide participants into small groups (3-5 people).

Provide each group with a workplace scenario worksheet (e.g., office workers, factory workers, healthcare professionals).

Ask each group to:

Identify potential MSD hazards in the provided scenario (e.g., repetitive typing, lifting heavy boxes, standing for long hours).

Determine whether these tasks are associated with acute or chronic MSDs.

Suggest ergonomic improvements that can help prevent MSDs (e.g., ergonomic chairs, rotating tasks, or using lifting techniques).

After that ask each group to present their findings to the class, discussing the identified MSD risks, their potential impact on workers, and suggested solutions

2.4.6. Notes for Facilitation

- Summarize the important points and terms explained in the session.
- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions.

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2.4.7. Summary

MSDs include a set of disorders related to the muscles, tendons, ligaments, joints, and nerves caused by repetition in the movement, poor posture, or overexertion in the workplace. Knowing about these disorders and how they come about will provide prevention from injuries and improvement of workers' health.

Knowledge of Musculoskeletal Disorders

Mechanism of Inflammation: MSDs usually result from inflammation caused by prolonged strain, repetitive movements, or awkward postures. Inflammation leads to pain and stiffness in the affected parts and damages tissues over time.

Acute vs. Chronic:

Acute MSDs result suddenly and usually as a result of a specific injury or event, such as lifting a heavy object.

Chronic MSDs build up over time because of strain or poor ergonomics and persist for many months. They may cause chronic pain and impairment.

Determining Jobs/Task with MSD Hazards

There are specific jobs and tasks that place workers at a greater risk of MSD hazards. The most common MSD hazards involve:

Repetitive Movements: Job duties such as typing, assembly work, or use of handheld equipment put muscle and joints at a greater risk of injury.

Unfavourable Postures: Tasks that force employees to bend, twist, or stretch for hours expose them to musculoskeletal strain.

Handling Objects: When objects are lifted, pushed, pulled, or carried without the proper lifting technique, this can increase the chance of back injuries and overuse of the muscles and joints.

Protracted Sitting or Standing: Being in a static posture for an extended time can lead to pain, stiffness, and soreness in the back and legs.

Recognizing the Symptoms of MSD

Among other signs, MSDs may have:

Muscle Weakness or Discomfort: Muscles may feel weak or tired especially after repetitive tasks.

Tingling or Numbness: Compression of nerves or could be reduced circulation causes such sensations to the hands or feet.

Swelling: Inflammation in joints or tendons can cause them to swell.

Inflammation: Constant irritation and swollen muscles or joints as a result of overuse or injury.

Stiffness: Reduced motion of joints or muscles caused by tightness or swelling.

Pain or Burning Sensation: Pain experienced for long periods, especially at the back, neck, shoulders, wrists, or hands, usually increases with activity.

Other risk factors for MSDs include:

Poorly designed Ergonomics: Design of the workstation is such that it has improper chair heights or poor computer positions, which lead into awkward postures.

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Repetitive Movements: Any motion that is performed over and over again without adequate rest causes more strain on muscles and joints.

Forceful Actions: It strains a person by carrying heavy items or doing actions that require considerable strength.

Environmental Factors: Poor light, excessive noise, or uncomfortable temperatures can also lead to MSDs.

2.4.8. Exercise

1. Which of the following is a common symptom of musculoskeletal disorders (MSDs)?

a) Increased appetite

b) Muscle weakness or discomfort

c) Excessive sweating

d) High blood pressure

2. What is the main inflammatory mechanism behind the development of musculoskeletal disorders (MSDs)?

a) Increased blood flow

b) Abnormal joint movement

c) Inflammation of tissues such as muscles, tendons, and ligaments

d) Excessive bone growth

3. Swelling, inflammation, stiffness, and pain are common symptoms of musculoskeletal disorders (MSDs). (T/F)

4. Musculoskeletal disorders (MSDs) are usually short-term and do not require long-term management. (T/F)

5. Repetitive tasks, poor ergonomics, and overexertion are risk factors that can lead to musculoskeletal disorders (MSDs). (T/F)

6. The inflammatory process involved in musculoskeletal disorders typically affects the _____, tendons, and ligaments.

7. Jobs that require repetitive motion, improper posture, or heavy lifting can increase the risk of developing _____ disorders.

3. Unit 3 NOS 2: SSD/VSQ/N0127: Evaluation of risk associated with

Ergonomic hazards

3.1. Key Learning Outcomes

- Identify ergonomic risk factors.
- Evaluate the risk levels, severity, frequency, and duration of exposure to ergonomic risk factors.
- Evaluate the effectiveness of existing control measures, existing data, and feedback.
- Identify gaps in the existing control measures.
- Develop standard ergonomic assessment and risk assessment methods

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3.2. Unit 3.1. Identification of ergonomic risk factors

3.2.1. Unit Objectives

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

- Indicate critical ergonomic risks for example repetition without repetition or awkward postures in a standing position, stress from noise, work layout, lifting, pushing, pulling, restrictive areas, forceful motion, direct pressure, vibration, extreme temperatures, and poor lighting.
- Identify conditions, situations, and environmental factors that will develop potential ergonomic workplace hazards.
- Investigate the conditions that create high-risk ergonomic situations and develop a standard method for the assessment and management of such situations.

3.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

3.2.3. Say

- Describe basic factors affecting ergonomics risks & hazards
- Describe Identify conditions, situations, and environmental factors that will develop potential ergonomic workplace hazards.
- Describe the conditions that create high-risk ergonomic situations and develop a standard method for the assessment and management of such situations

3.2.4. Explain

- Describe basic factors affecting ergonomics risks & hazards
- Describe Identify conditions, situations, and environmental factors that will develop potential ergonomic workplace hazards.
- Describe the conditions that create high-risk ergonomic situations and develop a standard method for the assessment and management of such situations

3.2.5. Activity

Divide the class into small groups (3-4 students per group).

Give each group a printed image of a different workplace (office, factory, healthcare, etc.).

Ask each group to identify as many ergonomic risks and hazards as possible from the image, such as poor posture, repetitive tasks, uncomfortable seating, noise, lifting techniques, etc.

Have them note their observations on the “Ergonomic Risk Identification Worksheet” provided.

3.2.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

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- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

3.2.7. Summary

Basic Ergonomic Risk Factors: Common risks include repetitive movements, awkward postures, prolonged stationary positions, lifting, pushing, pulling, forceful motions, exposure to vibration, extreme temperatures, and inadequate lighting. If these issues are not addressed, they can lead to musculoskeletal disorders (MSDs), fatigue, and long-term health complications.

Work Environment and Conditions: Factors such as equipment layout, confined spaces, noise levels, and work-related stress contribute to ergonomic hazards. The overall condition of the workspace, including the design of tools and machinery, significantly impacts the risks that workers may encounter.

Analysis of Ergonomic Risk Factors: To reduce these risks, it is crucial to systematically analyse each contributing factor. This includes evaluating how each element affects worker health and safety, considering both the frequency and intensity of exposure. A standardized approach to risk evaluation helps prioritize which risks to tackle first, ensuring that interventions are both effective and suitable.

3.2.8. Exercise

1. Which of the following is considered an ergonomic risk factor?

a) High work productivity

b) Repetitive tasks and awkward postures

c) Adequate lighting

d) Comfortable seating

2. Which of the following environmental factors can contribute to ergonomic hazards?

a) Humidity and noise

b) Cold temperature and vibration

c) High work pressure and improper workstation layout

d) All of the above

3. True or False: Repetitive motions and awkward postures are primary contributing factors to ergonomic hazards.

4. True or False: Vibration from machinery or tools has no significant impact on ergonomics risks.

5. True or False: Confined workspaces can create ergonomic risks by limiting the worker's ability to move freely and maintain good posture.

3.3. Unit 3.2. Evaluation of Risk factors & risk levels

3.3.1. Unit Objectives

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

- To develop efficient evaluation parameters, assessing the ergonomic risk factors in the workplace.

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- Learn and practice different risk assessment tools, matrices, and checklists in identifying and measuring ergonomic risks.
- Formulate an organized methodological process to review workplace operations and tasks that may introduce ergonomic risks.
- Assess ergonomic risks and rank them into risk levels (low, moderate, high) to initiate further action towards reducing such risks.

3.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

3.3.3. Say

- Describe evaluation parameters for assessing the ergonomic risk factors in the workplace
- Describe about different risk assessment tools
- Describe about process of Assess ergonomic risks and rank them into risk levels (low, moderate, high) to initiate further action towards reducing such risks.

3.3.4. Explain

- Describe evaluation parameters for assessing the ergonomic risk factors in the workplace
- Describe about different risk assessment tools
- Describe about process of Assess ergonomic risks and rank them into risk levels (low, moderate, high) to initiate further action towards reducing such risks.

3.3.5. Activity

Divide the class into small groups (3-4 participants per group).

Assign each group a workplace scenario (e.g., office environment, factory setting, retail environment, or hospital). If needed, provide printed images or case study examples of these environments.

Task for the groups:

Review the scenario and use a risk assessment checklist to identify potential ergonomic hazards.

Evaluate factors such as:

Repetition of movements

Awkward postures

Stationary positions

Equipment layout

Forceful motion (e.g., lifting)

Environmental factors (e.g., lighting, temperature, noise)

Assign risk levels (low, medium, or high) to the identified hazards based on their severity and likelihood.

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Discussion: After completing the assessment, each group will present their findings to the class, explaining how they arrived at their conclusions regarding the risk levels and suggested mitigation strategies.

3.3.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

3.3.7. Summary

Develop Evaluation Parameters

Initially, the individual will learn what an essential parameter is that contributes to ergonomic risk, such as task repetition and awkward postures, adverse environmental factors, and equipment layouts. Learning the tools required for the assessment of risk (like checklists and evaluation matrices) is essential for the identification and quantification of these risks, as these tools help in systematic evaluations of hazard severity and likelihood.

Review Methodology:

It ensures that ergonomic hazards are identified consistently in the workplace using a structured review methodology. The methodology has to do with regularly conducting an assessment into the processes that the workplace undertakes, task observation, and employee feedback to create an even wider detection scope for possible ergonomic hazards. Having clear definition review processes means that risks will keep being identified while new ones will be recognized in time.

Analyse and Classify Risks

Upon identification of risk factors, the individual needs to learn the analysis of these risk factors and their classification according to the level of risk as low, medium or high. Determination of severity is made on each risk in addition to using a risk matrix and various other tools to derive the possibility of occurrence. After determining the levels of risk, relevant actions against the hazards can be taken.

3.3.8. Exercise

1. What is the purpose of developing a review methodology for workplace processes and tasks?

a) To improve employee performance

b) To identify potential ergonomic hazards and risks

c) To assess employee satisfaction

d) To conduct financial audits

2. How do you determine the level of risk of an ergonomic hazard?

a) By assigning random values

b) By using risk matrices that assess severity and likelihood

c) By comparing it to similar industries

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d) By calculating the employee's stress levels

3. True or False: Developing evaluation parameters for ergonomic risk factors helps standardize the assessment process in the workplace.

4. True or False: The review methodology for ergonomic hazards only needs to be developed once and doesn't require regular updates.

5. To evaluate ergonomic risk factors, it is essential to develop _____ parameters that help in identifying and analysing risks.

6. A _____ is a tool commonly used to systematically assess ergonomic hazards and their potential risks.

3.4. Unit 3.3. Develop ergonomics risk assessment methods & controls

3.4.1. Unit Objectives

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

- Create suitable ergonomic controls to effectively reduce identified workplace risks, prioritizing actions based on the severity of those risks.
- Formulate clear and organized implementation plans for the suggested ergonomic control measures, ensuring they are in line with organizational objectives and safety standards.
- Develop strong monitoring methods to assess the effectiveness of ergonomic control measures, confirming that they achieve the intended results and uphold worker safety.
- Understand how to evaluate the results of control measures and adjust them as necessary to continuously enhance ergonomics and prevent injuries.

3.4.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

3.4.3. Say

- Describe ergonomic controls to effectively reduce identified workplace risks, prioritizing actions based on the severity of those risks.
- Describe clear and organized implementation plans for the suggested ergonomic control measures, ensuring they are in line with organizational objectives and safety standards.
- Describe monitoring methods to assess the effectiveness of ergonomic control measures, confirming that they achieve the intended results and uphold worker safety

3.4.4. Explain

- Describe ergonomic controls to effectively reduce identified workplace risks, prioritizing actions based on the severity of those risks.

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- Describe clear and organized implementation plans for the suggested ergonomic control measures, ensuring they are in line with organizational objectives and safety standards.
- Describe monitoring methods to assess the effectiveness of ergonomic control measures, confirming that they achieve the intended results and uphold worker safety

3.4.5. Activity

Divide the class into small groups (3-4 participant per group).

Provide each group with a set of ergonomic risk factors they identified in previous lessons (such as awkward posture, lifting techniques, noise, vibration, etc.).

Ask each group to develop appropriate control measures for each identified risk, using the hierarchy of controls.

Have groups prioritize the control measures based on the severity of the risks (e.g., high-risk factors should be addressed first with elimination or engineering controls, while lower risks can be handled with administrative controls).

Groups should document their control measures on the "Ergonomic Control Measures Worksheet."

3.4.6. Role Play

Ergonomic Risk Control and Implementation

Roles:

Ergonomics Consultant (Leader of the team, responsible for assessing risks and recommending solutions)

HR Manager (Responsible for implementing ergonomic interventions in the workplace)

Safety Officer (In charge of monitoring and evaluating the effectiveness of the control measures)

Employee Representative (Represents the workers affected by ergonomic risks and provides feedback on the effectiveness of interventions)

Supervisor (Responsible for overseeing the work processes and ensuring the control measures are followed)

Scenario:

A manufacturing company has been experiencing a rise in musculoskeletal disorders (MSDs) among workers due to poor ergonomic practices in the workplace. The management has decided to take action by consulting with an ergonomics expert to develop appropriate control measures and implement them effectively.

Identifying Ergonomic Risks and Prioritizing Control Measures (15 minutes)

Role Play Scenario:

The HR Manager has received complaints from employees about back pain, discomfort from prolonged standing, and repetitive stress injuries from assembly line work. The Ergonomics Consultant leads a meeting to discuss and identify the ergonomic risks.

Ergonomics Consultant: Leads the team in identifying the risks associated with each task, such as awkward postures, repetitive motions, and poor workstation design.

HR Manager: Asks for a list of potential controls for each identified risk and prioritizes the controls based on the severity and frequency of the risks.

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Safety Officer: Provides insight into the risk factors' impact on employee safety, suggesting that back pain and repetitive lifting should be prioritized due to their potential to cause long-term injuries.

Develop a list of ergonomic risks (e.g., poor posture, repetitive motions, uncomfortable seating) and prioritize control measures (e.g., workstation redesign, job rotation, proper lifting techniques) based on risk severity.

3.4.7. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

3.4.8. Summary

Designing Ergonomic Controls

Developing control measures to mitigate the remaining ergonomic hazards should also be considered. Such measures will relate to the ergonomic problems, for example, poor postures such as repetitive movements and improper techniques of lifting. Prioritization of these controls can be made based on risk severity or frequency of occurrence. High risk would include cases like back pains due to bad posture or repetitive strains. The case will be addressed with more significant interventions like workstation redesign or ergonomic tools; minor risks may be adjusted by simpler means such as job rotation or training.

Preparing Implementation Plans

After the control measures have been identified and ranked, a strategy to implement them should be drawn up. This should specify the actions to be taken, the timing of the actions, the resources required (equipment or training or personnel, etc.), and the name or names of those who will be responsible for ensuring that the planned changes happen. Well-determined, action-pointed pathways are the enabling factors behind effective implementation of interventions within reasonable timeframes to produce real improvements in workplace ergonomics.

Explanations on Monitoring Methodology

A significant step in the whole process is to monitor the effectiveness of the ergonomic controls that were implemented. Developing this monitoring of methodology involves setting KPIs that reveal whether those control interventions reduce the risks in the workplace-by enhancing comfort and work efficiency. This could mean tracking some injury rates, complaints by workers, or whole work efficiency increase. Monitoring regularly helps to track whether control measures get the desired results or have any other issues that might need to be improved.

Measuring Outcomes and Modification of Controls

At last, measuring the outcomes of implemented ergonomic interventions is vital to gauge the success of ergonomic interventions. This involves verifying whether the goals of interest, such as the objectives for reduced musculoskeletal injury or improved worker satisfaction, have been achieved. If the measures have not yielded the desired effects, then change to the control measures might be warranted. Such

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changes can include adjustments to the workstation setup, other training, or new technologies. Continuous improvement is a key element of ergonomics that keeps the workplace safe and efficient.

3.4.9. Exercise

1. In ergonomic control, which factor is used to prioritize the implementation of control measures?

a) Employee satisfaction

b) Severity of the identified risks

c) Cost of the measure

d) Employee personal preferences

2. Which of the following is the first step in addressing ergonomic risks?

a) Implement control measures immediately

b) Develop appropriate ergonomic controls based on severity of identified risks

c) Monitor the effectiveness of implemented controls

d) Measure the outcomes of the controls

3. True or False: An implementation plan for ergonomic control measures should be developed without considering available resources and organizational goals.

4. True or False: Monitoring the effectiveness of control measures is essential to ensure that ergonomic risks are reduced and desired outcomes are achieved.

5. An effective _____ plan ensures that the recommended ergonomic control measures are implemented in a structured and systematic way.

6. To check the effectiveness of the ergonomic control measures, a _____ methodology must be developed.

4. Unit 4 NOS 3: SSD/VSQ/N0128: Hazard Identification & Risk Assessment

4.1. Key Learning Outcomes

At the end of this module, the trainees will be able to

- Understand the importance of ergonomic safety schemes in the workplace.
- Understand workplace design principles, appropriate acoustics, lighting, ventilation, and temperature control for workplace design
- Identify the need for ergonomics solutions through workplace assessments, observation, and analysis of injury data.
- Develop ergonomic solutions and safety programs in the workplace.
- Develop control measures (action taken to prevent, eliminate or reduce hazard) to mitigate ergonomic hazards and reduce the risk of injury.
- Evaluate the effectiveness of the ergonomic safety scheme and identify optimal equipped work
- tools.

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4.2. Unit 4.1: Identifying & Developing Ergonomics Solutions

4.2.1. Unit Objectives

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

- Understanding of ergonomic principles to facilitate comfort and efficiency of employee's workstations.
- Ergonomic risk factors: workstation and equipment design.
- Gap analysis: analysis to find shortcomings in the present workplace ergonomics.
- Observation and analysis to assess the needs and deficiencies of the workplace in terms of ergonomics.
- Development of a customized ergonomic safety program tailored to identified needs and risk.
- Recommendations on what needs to be done to enhance the well-being of the employee.
- Develop a systematic plan for introducing ergonomic control measures
- Use the hierarchy of controls in eliminating, substituting, or implementing engineering controls, or use administrative controls and PPE for control over ergonomic hazards.
- Prioritize and make effective action steps to control injury prevention.

4.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

4.2.3. Say

- Describe ergonomic principles to design workstations and equipment to reduce ergonomic risk factors
- Identify gaps in existing workplace by gap analysis
- Describe how to prepare ergonomics safety scheme for solutions
- Describe the an action plan for implementing control measures and hierarchy of controls

4.2.4. Explain

- Describe ergonomic principles to design workstations and equipment to reduce ergonomic risk factors
- Identify gaps in existing workplace by gap analysis
- Describe how to prepare ergonomics safety scheme for solutions

Describe the an action plan for implementing control measures and hierarchy of controls

4.2.5. Activity

Instructions: Divide the class into small groups. Each group will be given a set of images depicting poorly designed workstations (e.g., desk setups with poor posture, improper chair height, bad lighting).

Task:

Identify ergonomic risk factors in the workstation images.

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Conduct a gap analysis to determine what is missing or wrong with the design based on ergonomic principles.

Group Presentations: Each group presents their analysis and the gaps they found in the workstations.

4.2.6. Notes for Facilitation

- Summarize the important points and terms explained in the session.
- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions.

4.2.7. Summary

Ergonomic Principles in the Context of an Individual

The individual should be able to design workstations and choose equipment with reduced ergonomic risk factors in the workstation, such as posture problems, repetitiveness, or improper use of the tool. These include the layout of the workstation as well as adjustments to the seating and positioning of equipment. Further, it should carry out a gap analysis on existing design workplaces to see where ergonomic risk factors exist in such workplaces.

Analysis and Preparation of Ergonomics Safety Solutions

Based on identified gaps and risks, he or she should be able to analyse the needs for ergonomic interventions and produce a full ergonomic safety scheme. It includes finding the most effective means to minimize injury risks with the application of ergonomic tools, seating arrangements, or adjustments in the physical work environment. The scheme should be capable of coping with the specific needs of the workplace to derive greater comfort and productivity among employees.

Action Plan for Control Measures

After detection of ergonomic risks and developing solutions, the individual should compile an implementable action plan for control measures appointed. This should be a hierarchy of controls, starting with the elimination of hazards, followed by substituting harmful practices and equipment along with engineering, administrative, and PPE controls when necessary. The plan must emphasize effective and feasible solutions, ensuring that the systems for ergonomic improvement in workplaces can be established practically and durably.

4.2.8. Exercise

1. What is the first step in the hierarchy of controls when addressing ergonomic hazards?

a) Providing Personal Protective Equipment (PPE)

b) Engineering controls

c) Elimination of the hazard

d) Administrative controls

2. A gap analysis in ergonomics is used to:

a) Identify hazards that may cause injury

b) Improve the overall design of equipment

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c) Evaluate existing workplace designs and identify areas of improvement

d) Monitor employee productivity

3. True or False: Ergonomic principles focus only on the design of the workstation and not on the equipment used.

4. True or False: The action plan for implementing ergonomic solutions should prioritize solutions based on their feasibility and effectiveness.

5. To reduce ergonomic risk factors, workstations should be designed to support _____ posture and minimize strain.

6. An ergonomic safety scheme should include recommendations for solutions such as adjusting _____ and using ergonomic tools.

4.3. Unit 4.2 Implementing & maintaining ergonomics safety

4.3.1. Unit Objectives

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

- Design workplaces to minimize the risks to ergonomics of repetitive actions, awkward postures, static positions, noise, and work stress.
- Design workplaces to minimize the ergonomic risks of equipment layout, lifting, pushing, pulling, manual handling, confined spaces, forceful movements, direct push, vibration, and high temperatures.
- Periodically evaluate the operation of the ergonomics safety program.
- Analyze and interpret the data to measure the effectiveness of the ergonomics safety program and recommend remedial action.

4.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

4.3.3. Say

- Describe about process of designing workplace to reduce ergonomics risk repetition, awkward posture, stationary position noise, and work stress.
- Describe about process of designing workplace to reduce ergonomics risk in equipment layout, lifting, pushing, and pulling (manual handling), confined space, forceful motion, direct pressure, vibration, extreme temperature
- Describe **periodic evaluations of the ergonomic safety scheme**
- Describe about evaluation process to measure effectiveness of the ergonomic safety program and carry out improvement measures.

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4.3.4. Explain

- Describe about process of designing workplace to reduce ergonomics risk repetition, awkward posture, stationary position noise, and work stress.
- Describe about process of designing workplace to reduce ergonomics risk in equipment layout, lifting, pushing, and pulling (manual handling), confined space, forceful motion, direct pressure, vibration, extreme temperature
- Describe **periodic evaluations of the ergonomic safety scheme**
- Describe about evaluation process to measure effectiveness of the ergonomic safety program and carry out improvement measures.

4.3.5. Activity

Instructions: Divide the class into small groups. Each group is assigned a scenario describing a specific workplace (e.g., an office, warehouse, factory, or healthcare setting).

Task:

In their groups, students will analyse the given scenario and identify ergonomic risk factors (e.g., repetitive tasks, awkward postures, noise).

Design a new layout or workstation setup that reduces these ergonomic risks. The design should address:

Repetition and awkward posture (e.g., seating arrangement, task rotation)

Stationary position and work stress (e.g., adjustable desks, workstations, and proper breaks)

Noise (e.g., soundproofing or noise-reducing tools)

Ensure all aspects of manual handling (lifting, pushing, pulling) and temperature control are considered in their design.

Each group will present their proposed design to the class, explaining how their changes reduce ergonomic risks and improve workplace comfort and productivity.

4.3.6. Notes for Facilitation

- Summarize the important points and terms explained in the session.
- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions.

4.3.7. Summary

Designing Workplaces to Reduce Ergonomic Risks

Workplaces should be structured to minimize risks associated with repetitive tasks, awkward postures, prolonged sitting, excessive noise, and work-related stress. Effective strategies include utilizing adjustable furniture, encouraging task rotation, and managing noise levels to foster a more comfortable and productive work environment. It is also important to address manual handling hazards such as lifting, pushing, and pulling, along with risks linked to confined spaces, forceful movements, direct

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pressure, vibration, and extreme temperatures. A well-thought-out equipment layout and ergonomic design can significantly alleviate these physical strains on employees.

Carrying Out Periodic Evaluations

Conducting regular assessments of the ergonomic safety program is essential to gauge its effectiveness. These evaluations help pinpoint areas needing adjustments and ensure that the ergonomic solutions in place continue to comply with safety standards.

Analysing and Interpreting Data

Data analysis plays a crucial role in assessing the success of an ergonomic safety initiative. By examining injury reports, gathering employee feedback, and reviewing productivity metrics, one can determine the effectiveness of ergonomic interventions. This analysis can lead to further improvements and the introduction of new measures aimed at reducing risks and enhancing employee comfort.

4.3.8. Exercise

1. Which of the following manual handling tasks should be considered when designing a workplace to reduce ergonomic risks?

a) Only lifting

b) Lifting, pushing, and pulling

c) Only pushing

d) Only pulling

2. What is the purpose of carrying out periodic evaluations of the ergonomic safety scheme?

a) To evaluate employee performance

b) To assess the effectiveness of ergonomic solutions and identify areas for improvement

c) To change the work tasks for employees

d) To evaluate the financial cost of ergonomic interventions

3. True or False: A workplace ergonomic design should incorporate solutions to reduce repetitive tasks, awkward posture, and stationary positions.

4. True or False: Periodic evaluations of the ergonomic safety scheme are unnecessary once an ergonomic solution is implemented.

5. Manual handling tasks such as _____, pushing, and pulling should be carefully considered when designing workstations to reduce ergonomic risks.

6. Periodic evaluations of the ergonomic safety scheme help ensure that ergonomic interventions are _____ and continue to meet workplace needs.

4.4. Unit 4.3 : Monitoring and Effectiveness

4.4.1. Unit Objectives

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

- Developing a hierarchy of controls for ergonomic hazards and risks.
- Developing and maintaining documents of ergonomic safety programs.
- Developing methodology & procedures for maintaining continual ergonomic safety solutions & standard.

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4.4.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

4.4.3. Say

- Describe hierarchy of controls for ergonomic hazards and risks
- Describe about documentation of ergonomic safety programs
- Describe methodology & procedures for maintaining continual ergonomic safety solutions & standard

4.4.4. Explain

- Describe hierarchy of controls for ergonomic hazards and risks
- Describe about documentation of ergonomic safety programs
- Describe methodology & procedures for maintaining continual ergonomic safety solutions & standard

4.4.5. Activity

Instructions: Divide the class into small groups. Each group will receive a scenario worksheet with a detailed description of a workplace or task that presents ergonomic hazards (e.g., an office, factory, or healthcare environment).

The scenarios will include common ergonomic issues such as awkward posture, repetitive strain, manual handling risks, excessive noise, and poor workstation design.

Task:

Groups must apply the hierarchy of controls to the given scenario and develop a list of ergonomic interventions based on the order of priority (starting with elimination).

For each control level, students will explain the chosen solution and how it addresses the ergonomic risks.

Example: Elimination – Redesign the workstation to eliminate the need for repetitive motions.

Example: Substitution – Replace heavy manual lifting with automated equipment.

Example: PPE – Provide supportive gloves to prevent hand strain (as a last resort).

Group Presentations:

Each group will present their ergonomic control solutions to the class, providing a rationale for their choices at each level of the hierarchy.

4.4.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

Ask participants if they have any doubts. Encourage them to ask questions.

Answer questions, as needed, providing concrete and brief answers.

Tell participants to complete the questions at the end of the unit.

Ensure that every participant answers all the questions.

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4.4.7. Summary

Developing a Hierarchy of Controls for Ergonomic Hazards and Risks in the Workplace

When it comes to managing ergonomic hazards to the full possible extent, this approach is known within organizations as that with a Hierarchy of Controls. It helps develop removal or reduction solutions for priority ergonomic risk problems in an employee's health and safety perspective. The hierarchy includes:

Elimination: Completely remove the hazard from the workplace, for instance repetitive tasks which cause strain.

Substitution: Replace hazardous tasks for safer alternatives, like moving lighter lifting materials instead of heavy objects to reduce manual handling risks.

Isolation: Physically isolating the worker from the ergonomic hazard, such as using automated systems to perform tasks instead of requiring manual intervention.

Engineering controls: Modify the work site, equipment, or tools to reduce exposure to ergonomic risk. For example, this could be through the design of workstations that can be modified in height depending on requirements or tools that prevent repetitive motion.

Administrative controls involve changes in work practices e.g. work rotatory task completion or scheduled breaks when work involves ergonomic posture to minimize exposure or that exceed safe limits.

finally get that Personal Protective Equipment (PPE) into use as a measure of last resort to protect against residual ergonomic risks, such as gloves or supportive footwear.

Developing and Maintaining Documents of Ergonomic Safety Programs

A thorough ergonomic safety program needs to be documented and updated on a regular basis. This documentation generally covers:

Program Objectives: Specific goals aimed at reducing injuries and enhancing employee comfort.

Risk Assessments: A method for identifying and assessing ergonomic hazards.

Control Measures: A list of ergonomic controls that will be put in place according to the hierarchy of controls.

Training and Education: Making sure employees are informed about safe work practices.

Monitoring and Reporting: Describing how ergonomic solutions are monitored and how any issues are communicated.

Proper documentation guarantees that the safety program is standardized, transparent, and consistently adhered to.

Developing Methodology & Procedures for Maintaining Continual Ergonomic Safety Solutions & Standards

To maintain a sustainable and effective ergonomic safety program, ongoing efforts are essential to ensure that standards and solutions are continually enhanced. Key steps include:

Regular Risk Assessments: Identifying new ergonomic hazards as the workplace changes.

Employee Feedback: Continuously collecting insights from employees to refine ergonomic interventions.

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Ongoing Training: Keeping training materials current to reflect new safety standards and ergonomic practices.

Periodic Reviews: Evaluating ergonomic policies and solutions to ensure they remain effective and compliant with the latest research or regulations.

4.4.8. Exercise

1. Which control method involves modifying the workplace or equipment to reduce exposure to ergonomic hazards?

a) Substitution

b) Engineering Controls

c) Isolation

d) PPE

2. What is the last resort in the hierarchy of controls for mitigating ergonomic risks?

a) Engineering Controls

b) PPE Controls

c) Isolation

d) Elimination

3. Which of the following is an example of an administrative control for ergonomic safety?

a) Adjustable office chairs

b) Job rotation

c) Ergonomic keyboards

d) Using padded gloves

4. True or False: PPE (Personal Protective Equipment) should always be the first choice for controlling ergonomic hazards.

5. True or False: Regular updates and maintenance of ergonomic safety programs are essential to ensuring their continued effectiveness.

6. To reduce ergonomic risks, _____ controls involve modifying the work environment, such as using adjustable workstations.

7. Personal Protective Equipment (PPE) is considered a _____ line of Défense in the hierarchy of controls for ergonomic hazards.

5. Unit 5 NOS 4: SSD/VSQ/N0129: Ergonomic Safety Training programs

5.1. Key Learning Outcomes

- Understand practical and theoretical aspects of ergonomic principles.

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- Demonstrate practical application of ergonomics
- Develop an ergonomic safety training program in the workplace.
- Develop control measures & monitoring of training programs.
- Evaluate the effectiveness of the ergonomic safety training program, and continuous improvement and review.

5.2. Unit 5.1. Identifying need and development of ergonomics training program

5.2.1. Unit Objectives

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

- Understand Practical and Theoretical Aspects the three main aspects of ergonomics: physical, cognitive, and organizational ergonomics.
- Analyse the Safety Needs & Gaps and Develop a thorough ergonomic safety training program that is customized to meet the unique needs of the workforce.
- Create an actionable plan for rolling out the ergonomic safety training program across the organization .Integrate the hierarchy of controls into the training to ensure a structured approach to mitigating ergonomic risks.

5.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

5.2.3. Say

- Describe three main aspects of ergonomics
- Describe Safety Needs
- Describe how to develop a thorough ergonomic safety training program that is customized to meet the unique needs of the workforce.
- Describe about actionable plan for rolling out the ergonomic safety training program

5.2.4. Explain

- Describe three main aspects of ergonomics
- Describe Safety Needs
- Describe how to develop a thorough ergonomic safety training program that is customized to meet the unique needs of the workforce.
- Describe about actionable plan for rolling out the ergonomic safety training program

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5.2.5. Activity

Instructor-Led Discussion:

Briefly explain the Hierarchy of Controls and its role in ergonomic safety:

Elimination: Completely remove ergonomic hazards.

Substitution: Replace hazardous tasks with safer alternatives.

Engineering Controls: Modify the work environment (e.g., adjustable chairs, ergonomic tools).

Administrative Controls: Modify work processes (e.g., job rotation, breaks).

PPE: Personal Protective Equipment, used as a last resort.

Group Activity:

Instruct each group to integrate the Hierarchy of Controls into their ergonomics training program by:

Identifying which control measures should be highlighted during training.

Assigning appropriate controls to each identified ergonomic risk.

Ensuring that the training program teaches employees how to apply these controls to reduce risks.

5.2.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

5.2.7. Summary

- Understanding ergonomic principles is essential for spotting risks that could lead to injuries or inefficiencies in the workplace. Physical ergonomics looks at how employees physically interact with their workstations, focusing on aspects like posture and repetitive movements. Cognitive ergonomics examines how mental tasks—such as decision-making, memory, and stress management—affect performance. Organizational ergonomics aims to enhance the work environment by optimizing job designs, team structures, and workflow processes to boost productivity and well-being.

- Before creating a training program, it's important to thoroughly analyse the workplace to identify safety gaps and areas where ergonomic risks may arise. This process includes evaluating current workplace practices, observing employee behaviour, and reviewing incident reports to identify ergonomic hazards. Once these gaps are recognized, a customized ergonomics safety training program should be developed to meet specific needs. The training should aim to minimize the risks linked to poor ergonomics and encourage best practices that enhance worker comfort and efficiency.

- Once the training program is ready, it's vital to create a detailed action plan for its implementation. This plan should specify how the training will be delivered (such as through in-person sessions or online modules), allocate necessary resources (like trainers and equipment), and set timelines for

execution. Furthermore, the hierarchy of controls—Elimination, Substitution, Engineering Controls, Administrative Controls, and PPE—should be integrated to guide the implementation of safety measures, ensuring a systematic approach to reducing ergonomic risks.

5.2.8. Exercise

1. Which of the following is NOT a primary aspect of ergonomics?

a) Physical Ergonomics

b) Cognitive Ergonomics

c) Organizational Ergonomics

d) Emotional Ergonomics

2. What does cognitive ergonomics focus on?

a) Task design and layout

b) Mental processes such as decision-making and stress management

c) Posture and body movement

d) Environmental factors like lighting and noise

3. True or False: Cognitive ergonomics focuses on the physical design of tools and equipment used by workers.

4. True or False: Organizational ergonomics is concerned with improving the interaction between employees and their physical work environment only.

5. In an ergonomics training program, _____ ergonomics focuses on improving the design of tools, workstations, and work environments to reduce physical strain.

6. One of the steps in developing an action plan for ergonomics training is to integrate the _____ of controls, including elimination, substitution, engineering controls, administrative controls, and PPE.

5.3. Unit 5.2. Implementing & conduct of ergonomics safety training

5.3.1. Unit Objectives

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

- Understand the importance of training employees on ergonomic hazards and the potential risks they pose in the workplace.
- Develop a structured approach for periodic assessments of training effectiveness, including feedback surveys, interviews, and observations
- Develop strategies for implementing improvement measures based on data analysis, aiming to enhance training content and methods.

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5.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

5.3.3. Say

- Describe the importance of training employees on ergonomic hazards and the potential risks they pose in the workplace.
- Describe structured approach for periodic assessments of training effectiveness
- Describe strategies for implementing improvement measures based on data analysis, aiming to enhance training content and methods

5.3.4. Explain

- Describe the importance of training employees on ergonomic hazards and the potential risks they pose in the workplace.
- Describe structured approach for periodic assessments of training effectiveness
- Describe strategies for implementing improvement measures based on data analysis, aiming to enhance training content and methods

5.3.5. Activity

Group Activity:

Divide the class into small groups and assign each group a specific ergonomic hazard to focus on (e.g., poor workstation design, manual handling, repetitive motions).

Instruct each group to:

Identify the risks associated with the assigned hazard.

Develop a short ergonomics safety training module that includes:

Key learning objectives (e.g., identifying ergonomic risks, applying control measures).

A step-by-step guide to demonstrating control measures (e.g., proper lifting techniques, workstation setup).

Interactive components (e.g., quiz, demonstration, discussion).

Outcome: Each group should have a well-structured, short ergonomics training module ready for presentation.

5.3.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

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- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

5.3.7. Summary

Conduct Training on Ergonomic Hazards and Risks

A key component of ergonomics safety is making sure that employees are aware of the various ergonomic hazards present in their work environment. This includes identifying physical risks like repetitive strain injuries, awkward postures, and improper lifting techniques. Alongside these hazards, training should focus on control measures that can mitigate these risks, such as adjusting workstations, practicing proper ergonomic techniques, and utilizing assistive devices. An effective ergonomics training program should be engaging, informative, and practical, ensuring that employees know how to apply these control measures in their everyday tasks.

Carry Out Periodic Evaluations of the Ergonomic Safety Training Program

To ensure the training program remains effective, it is essential to conduct regular evaluations. These evaluations help determine if the training has met its goals—specifically, reducing ergonomic risks and enhancing workplace safety. Evaluation methods may include post-training surveys, direct observation of changes in employee behaviour, and analysis of injury or discomfort reports. Consistent feedback enables trainers to pinpoint areas for improvement, make necessary adjustments, and keep the training content aligned with current workplace conditions.

Analysing and Interpreting Data to Evaluate Effectiveness and Drive Improvement

Once periodic evaluations are completed, it is important to analyse the gathered data to assess the effectiveness of the ergonomics safety training. By interpreting feedback, injury statistics, and performance metrics, trainers can evaluate whether the training has resulted in meaningful enhancements in ergonomic practices. Based on this analysis, ongoing improvement measures can be put in place. These measures might include updating training materials, revising safety protocols, or providing additional resources to ensure continued success in minimizing ergonomic risks.

5.3.8. Exercise

1. What is the primary goal of conducting ergonomics safety training for employees?

a) To reduce workplace productivity

b) To make the workplace more comfortable

c) To identify ergonomic hazards and teach control measures

d) To increase employee working hours

2. Which of the following is an example of an ergonomic hazard?

a) A noisy office environment

b) A poorly designed workstation

c) A bright light source

d) All of the above

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3. True or False: Periodic evaluations of ergonomics safety training help identify gaps in the training program.

4. True or False: Analysing data from injury reports and feedback surveys is not necessary for improving the ergonomics safety training program.

5. Ergonomics safety training aims to identify and mitigate _____ in the workplace.

6. The periodic evaluation of an ergonomics safety training program helps identify _____ and areas for improvement

5.4. Unit 5.3. Monitoring and Effectiveness

5.4.1. Unit Objectives

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

- Create a structured hierarchy of controls to implement ergonomic safety measures and assess their effectiveness, prioritizing the most impactful control methods.
- Establish and keep thorough documentation of ergonomic safety programs, making sure that all procedures, evaluations, and control measures are accurately recorded and easily accessible.
- Formulate methodologies and procedures for sustaining an ongoing ergonomic safety training program, ensuring that standards are consistently upheld with regular updates and enhancements.

5.4.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

5.4.3. Say

- Describe about structured hierarchy of controls to implement ergonomic safety measures
- Describe about documentation of ergonomic safety programs
- Describe about methodologies and procedures for sustaining an ongoing ergonomic safety training program

5.4.4. Explain

- Describe about structured hierarchy of controls to implement ergonomic safety measures
- Describe about documentation of ergonomic safety programs
- Describe about methodologies and procedures for sustaining an ongoing ergonomic safety training program

5.4.5. Activity

Group Activity:

Divide the class into small groups and assign each group a specific ergonomic hazard scenario, such as poor workstation design, repetitive strain injuries, or improper manual handling.

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Instruct each group to develop a hierarchy of controls for their assigned scenario. They should:

Identify the ergonomic hazard and the associated risks.

Propose control measures in order of effectiveness (starting with elimination, ending with PPE).

Develop a plan for measuring the effectiveness of each control measure.

Outcome:

Each group will present their proposed hierarchy of controls and explain how they would measure the effectiveness of the chosen measures.

5.4.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

5.4.7. Summary

- Creating a hierarchy of controls is a key strategy in ergonomics safety. This approach focuses on addressing ergonomic hazards by implementing the most effective control measures first. This starts with eliminating the hazard, followed by substitution, engineering controls, administrative controls, and finally, personal protective equipment (PPE). It's crucial to implement this hierarchy thoughtfully and to regularly assess its effectiveness to ensure that ergonomic risks are reduced and performance outcomes are enhanced.
- Comprehensive documentation of ergonomic safety programs is vital for providing clear guidance on procedures, responsibilities, and safety protocols. Keeping these documents well-maintained ensures that all actions, evaluations, and safety measures are recorded, easily accessible, and current. This documentation acts as a reference for ongoing training, audits, and improvements, which supports the long-term success of the safety program.
- Continuous improvement is essential for effective ergonomics safety programs. Developing methodologies for maintaining and updating ergonomic safety training guarantees that employees are regularly informed about best practices and new hazards. Establishing procedures for reviewing and refining training content helps uphold high standards and adapt to emerging ergonomic challenges, ensuring that the workplace remains safe and efficient over time.

5.4.8. Exercise

1. What is the purpose of maintaining comprehensive documentation of ergonomic safety programs?

a) To fulfil legal requirements

b) To ensure that safety procedures, responsibilities, and evaluations are clearly recorded

c) To provide an employee handbook

d) To increase workplace productivity

2. Which of the following is a key step in developing a continual ergonomic safety training program?

a) Providing a single, one-time training session

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b) Regularly evaluating and updating the training program

c) Ignoring employee feedback

d) Reducing the scope of the program to save costs

3. True or False: A well-developed hierarchy of controls starts with elimination and ends with the use of personal protective equipment (PPE) as a last resort.

4. True or False: Ergonomics safety training programs should be conducted only once during the employee's career.

5. When developing an ergonomic safety program, it is important to include clear and organized _____ to

6. Regular updates to the ergonomic safety training program are essential for maintaining _____ and addressing emerging risks.

6. Unit 6 NOS 5: SSD/VSQ/N0104: Plan, Organize and Emergency protocols

6.1. Key Learning Outcomes

- Planning of resources for own work and communication to concerned subordinates, co-workers, and superiors.
- Provide necessary support to subordinates, coordinate with co-workers and liaise with superiors and other teams.
- Monitor progress of work and adjust, manage, or project requirements on time.

6.2. Unit 6.1: Planning of Work

6.2.1. Unit Objectives

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

- Understand process of plan the resources, schedules, and timelines as per work timelines given by superiors.
- Understand hierarchy of the organization and communicate to concerned co workers and superiors.
- Understand how to do work within timelines.

6.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

6.2.3. Say

- Describe resource allocation and resource schedule

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- Describe process of hierarchy of the organization and communicate to concerned co workers and superiors.
- Describe Task allocation and timeline

6.2.4. Explain

- Describe resource allocation and resource schedule
- Describe process of hierarchy of the organization and communicate to concerned co workers and superiors.
- Describe Task allocation and timeline

6.2.5. Activity

Planning of Work

- **Objective**: To understand the process of work planning, including resource allocation, schedule management, and effective communication, while simulating real-world workplace scenarios.
- **Activity Setup**:
  - Divide the class into small groups (4-5 students per group).
  - Provide each group with a **hypothetical project scenario** (e.g., a construction project, event planning, manufacturing task, or research project) that involves tasks to be completed within a set timeframe.
  - Provide **planning tools**, such as:
    - A **Gantt chart template** or **work schedule template**.
    - A **resource list** (e.g., equipment, personnel, materials).
    - A **project timeline** that outlines the total time available and key milestones.
- **Instructions**:

1. **Scenario Overview**:

- Present each group with a detailed scenario of a project or task. For example, for a construction project, the scenario might include building a new office space within three months, with specific deadlines for tasks like foundation laying, electrical installation, and final inspection.
- Emphasize that each group must plan the resources, schedule, and timelines effectively to complete the project successfully.

2. **Work Breakdown**:

- Each group should **break down the overall project** into smaller, manageable tasks or phases. For instance:
- **Task 1**: Site preparation and foundation laying.
- **Task 2**: Framing and structure work.
- **Task 3**: Electrical wiring installation.
- **Task 4**: Final inspection and project handover.
- Assign responsibilities for each task (e.g., which team member or department will handle which task).

3. **Resource Allocation**:

- Identify the resources required for each task:
- **Personnel**: Who will do what (e.g., skilled workers, managers, supervisors)?
- **Equipment**: What tools or machinery are needed?

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- **Materials**: What materials (e.g., wood, cement, wiring) are required for the project?
- Groups should allocate resources for each task, ensuring that the necessary items are available at the right time.

4. **Timeline Creation**:

- Using a **Gantt chart** or **work schedule**, groups must map out when each task will begin and end, taking into account dependencies (e.g., Task 2 cannot start until Task 1 is completed).
- Ensure that they account for any potential delays, allowing some buffer time between tasks or key milestones.

5. **Communication Plan**:

- Develop a **communication plan** to ensure all team members and stakeholders are informed about the work schedule and progress.
- Decide how to communicate with superiors or other departments (e.g., regular progress reports, meetings).
- Discuss how changes to the schedule or issues will be communicated and resolved.

6. **Risk Assessment**:

- Identify potential **risks** to the successful completion of the project (e.g., delays in material delivery, workforce shortages).
- Plan **mitigation strategies** to address these risks (e.g., backup suppliers, additional shifts, contingency time in the schedule).

7. **Presentation**:

- Each group presents their **work plan** to the class, including:
- Breakdown of tasks and milestones.
- Resource allocation plan.
- Timeline and Gantt chart.
- Communication strategy and risk management plan.
- After each presentation, encourage questions and feedback from the class on how the plan could be improved.

- **Discussion**:
  - Discuss the importance of **effective work planning** in completing projects on time and within budget.
  - Emphasize the role of **resource management**, **timeline adherence**, and **communication** in the success of any project.
  - Discuss how unplanned risks or delays can affect the overall work plan and how to manage those risks proactively.
- **Conclusion**:
  - Recap the essential components of **work planning**, including task breakdown, resource allocation, timeline management, and communication.
  - Reinforce that planning is a critical skill for any professional and helps ensure that projects are completed efficiently, safely, and successfully.

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- Encourage students to always consider potential risks and communication needs while planning work in real-world situations.

6.2.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

6.2.7. Summary

1. Resource and Schedule Planning:

Plan resources, schedules, and timelines based on work deadlines set by superiors.

2. Understanding Organizational Hierarchy:

Understand the hierarchy within the organization.

Communicate effectively with co workers and superiors according to the organizational structure.

3. Task Delegation:

Assign tasks to subordinates in alignment with project requirements and timelines.

6.2.8. Exercise

1. What is the first step in planning safety resources for a work task?

A) Gathering feedback from team members

B) Reviewing the overall work timelines and objectives

C) Conducting a financial audit

D) Allocating tasks to subordinates

2. What is the primary purpose of resource planning?

A) To allocate tasks to employees

B) To minimize costs

C) To ensure resources are available when needed

D) To increase profit margins

3. Which document typically outlines the project schedule?

A) Project charter

B) Statement of work

C) Project management plan

D) Risk management plan

4. Which term describes the resources needed to complete a project?

A) Resource pool

B) Resource allocation

C) Resource capacity

D) Resource requirement

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5. True or False: In work planning, it is essential to consider worker skill levels and ensure adequate training for the tasks they will perform.

6. True or False: Work planning should avoid including safety protocols if the tasks seem simple or low-risk.

7. True or False: A detailed work plan helps in minimizing delays, reducing accidents, and increasing productivity.

6.3. Unit 6.2: Organizing of Work

6.3.1. Unit Objectives

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

- Resource collection and provisioning.
- Understand Communication Medium to concerned co workers and superiors.
- Briefing to subordinates about the schedule, sequence, timing and resources to subordinates

6.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

6.3.3. Say

- Describe Resource collection and provisioning
- Describe process of hierarchy of the organization and communicate to concerned co workers and superiors.
- Describe process of Briefing to subordinates about the schedule, sequence, timing and resources to subordinates

6.3.4. Explain

- Describe Resource collection and provisioning
- Describe process of hierarchy of the organization and communicate to concerned co workers and superiors.
- Describe process of Briefing to subordinates about the schedule, sequence, timing and resources to subordinates

6.3.5. Activity

Walk through the key elements of creating ergonomics training content:

Introduction to Ergonomics: Overview, common ergonomic hazards, and their impact.

Risk Identification: How to identify ergonomic hazards in the workplace.

Practical Solutions: Demonstration of ergonomic principles and best practices (e.g., proper workstation setup, posture, material handling).

Preventive Measures: Actionable steps employees can take to reduce injury risks.

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Group Exercise:

Based on the training needs identified earlier, have each group design a section of the ergonomics safety training program. They should:

Select a specific topic (e.g., workstation setup, lifting techniques, posture correction).

Develop training materials (slides, handouts, demonstrations, or videos).

Plan how they will present the information (lecture, demonstration, role-playing).

Outcome:

Groups will present their training materials and explain how they would deliver their segment in a training session.

6.3.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

6.3.7. Summary

1.Resource Collection and Provisioning:

Collect and provide necessary resources for the tasks at hand.

2.Effective Communication:

Communicate relevant information to co-workers and superiors.

3.Briefing Subordinates:

Brief subordinates about the work schedule, task sequence, timing, and available resources.

6.3.8. Exercise

1. What is the primary purpose of resource collection in project management?

A) To allocate tasks

B) To gather necessary materials and inputs

C) To create budgets

D) To schedule meetings

2. What is the first step in resource collection?

A) Allocation of resources

B) Identifying resource needs

C) Distribution of resources

D) Evaluation of resources

3. What is the first step in the resource provisioning process?

A) Allocating resources

B) Identifying resource requirements

C) Monitoring resource usage

D) Reporting resource status

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4. What is the best way to ensure your message is understood by co-workers?

A) Use technical jargon

B) Keep the message concise and clear

C) Avoid summarizing key points

D) Speak quickly

5.True or False: It is not necessary to assign clear responsibilities for safety and emergency procedures when organizing work.

6.True or False: Organizing work includes scheduling tasks in a way that optimizes productivity without compromising safety.

7.True or False: Organizing work should only focus on the efficiency of the process and not on the health and safety of the workers.

6.4.Unit 6.3: Monitoring of Work

6.4.1. Unit Objectives

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

- Understand process of monitoring progress of work, management of resources, guidance to subordinates.
- Understand process of reporting to superiors and keeping the other teams informed.
- Documentations and compliances and report submission.

6.4.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

6.4.3. Say

- Describe about process of monitoring progress of work, management of resources, guidance to subordinates
- Describe about process of reporting to superiors and keeping the other teams informed
- Describe importance of Documentations and compliances and report submission

6.4.4. Explain

- Describe about process of monitoring progress of work, management of resources, guidance to subordinates
- Describe about process of reporting to superiors and keeping the other teams informed

Describe importance of Documentations and compliances and report submission

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6.4.5. Activity

Discuss how to analyse and interpret the collected data to evaluate the effectiveness of the ergonomics safety program:

Comparing pre- and post-training data (e.g., reduction in injuries after training).

Employee feedback: Using surveys and interviews to gauge employees' perceptions of the program.

Incident reports and injury data: Analysing trends in injury rates and correlating them with ergonomic practices.

Activity:

Using the data collected in Step 2, students will analyse the effectiveness of the ergonomics safety program. They will:

Review injury or incident data before and after implementing ergonomics changes.

Survey employees on their experiences with the ergonomics program (e.g., did they notice improvements in their comfort or productivity?).

Identify any gaps in the data and propose strategies for improving the program's monitoring process.

Outcome:

Groups will prepare a presentation with their findings on the program's effectiveness and the recommended improvements based on data analysis.

6.4.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

6.4.7. Summary

1. Track Progress:

Continuously monitor the progress of tasks and projects against set timelines and goals.

2.Ensure Compliance:

Ensure work is being carried out according to established procedures, safety standards, and quality guidelines.

3.Identify Issues:

Identify any delays, resource shortages, or obstacles and address them promptly.

4.Provide Support:

Offer assistance or guidance to team members as needed to ensure smooth workflow.

5.Report Status:

Regularly report work progress to superiors and stakeholder

6.4.8. Exercise

1.What role does leadership play in monitoring work?

A) It is irrelevant

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B) It sets the tone for accountability and support

C) It complicates processes

D) It should be avoided

2. What is the primary purpose of monitoring progress in a project?

A) To assign blame for delays

B) To ensure tasks are completed on time and within budget

C) To ignore issues as they arise

D) To complicate project management

3. Which of the following is a key indicator of project progress?

A) Employee satisfaction

B) Milestone completion

C) Office atmosphere

D) Social media engagement

4.True or False: Organizing work should consider the availability of resources, including tools, materials, and equipment, to avoid delays or inefficiencies.

5. True or False: It is not necessary to assign clear responsibilities for safety and emergency procedures when organizing work.

6. True or False: Organizing work includes scheduling tasks in a way that optimizes productivity without compromising safety.

6.5. Unit 6.4. Emergency Protocols

6.5.1. Unit Objectives

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

- Set up medical emergency measures, in case of accidents/incidents at the workplace.
- Set up fire emergency measures as per plans in case of any fire accidents at the workplace.
- Set up emergency assembly area, evacuation plan, sign boards and guidance

6.5.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

6.5.3. Say

- Describe about process of medical emergency measures, in case of accidents/incidents at the workplace.
- Describe about process of fire emergency measures
- Describe importance of emergency assembly area, evacuation plan, sign boards and guidance

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6.5.4. Explain

- Describe about process of medical emergency measures, in case of accidents/incidents at the workplace.
- Describe about process of fire emergency measures
- Describe importance of emergency assembly area, evacuation plan, sign boards and guidance

6.5.5. Activity

Divide the class into small groups and assign each group a workplace accident scenario (e.g., a chemical spill, electrical shock, or severe bleeding).

Have the groups discuss and create a detailed Medical Emergency Response Plan, including:

Immediate steps to take in their scenario.

How to access and use first aid supplies.

Communication protocols (e.g., who to call for help and how).

The roles and responsibilities of employees in the medical emergency response.

6.5.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

6.5.7. Summary

1.Set Up Medical Emergency Measures

Setting up medical emergency measures at the workplace is crucial to ensuring prompt and effective response in the event of accidents or incidents. This includes having a well-stocked First Aid Kit, designated first aid responders, and an organized system for medical emergencies. Emergency contacts, procedures for assessing and treating injuries, and clear instructions on how to seek medical assistance should all be in place. Additionally, regular training and drills are important to maintain preparedness in dealing with various medical emergencies, ensuring quick and efficient response when accidents occur.

2.Set Up Fire Emergency Measures

Fire safety at the workplace is vital to minimize the risks of fire hazards. Setting up fire emergency measures involves identifying fire hazards, providing accessible fire extinguishers, and ensuring that fire alarms and fire exits are in place. A comprehensive fire emergency plan should be developed, which includes evacuation routes, emergency contacts, and roles assigned to staff members (e.g., fire marshals). Regular fire drills are essential for ensuring that everyone is familiar with evacuation procedures and can act quickly in case of a fire emergency.

3.Set Up Emergency Assembly Area, Evacuation Plan, Sign Boards, and Guidance

An evacuation plan is essential for guiding individuals to safety during emergencies, whether fire-related or other critical incidents. The workplace should have designated emergency assembly areas away from

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potential hazards. Clear signage and guidance are necessary for directing employees to these assembly areas and safe exits. Evacuation routes should be well marked, easily accessible, and designed to accommodate all employees, including those with special needs. Regular practice drills are also important to ensure employees are familiar with the evacuation process and can follow the procedures efficiently in case of an emergency.

6.5.8. Exercise

1. Which of the following is a key component of setting up medical emergency measures at the workplace?

a) First Aid Kit

b) Fire extinguishers

c) Emergency assembly area

d) Security cameras

2. What should be included in a fire emergency plan at the workplace?

a) A list of employees

b) Locations of fire exits and extinguishers

c) Employee break times

d) Parking lot layout

3.What is the primary purpose of an emergency assembly area?

a) To store emergency medical supplies

b) To gather employees during an evacuation

c) To provide refreshments during emergencies

d) To conduct safety drills

4.In the event of a fire, employees should follow the _____ to evacuate the building safely.

5.The _____ is designated as a safe area where employees should gather after evacuating the workplace during an emergency.

6. A fire emergency plan should include clear instructions about the location of _____, fire exits, and emergency contact information.

7. True or False: All employees should be familiar with the workplace's emergency evacuation routes and assembly areas.

8. True or False: In case of fire, it is important to use the nearest exit and not to wait for instructions.

7. Unit 7 NOS 6: Employability Skills (DGT/VSQ/N0102)

7.1. Key Learning Outcomes

- Introduction to Employability Skills Constitutional values - Citizenship
- Becoming a Professional in the 21st Century Basic English Skills
- Career Development & Goal Setting Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy Essential Digital Skills

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- Entrepreneurship Customer Service
- Getting ready for Apprenticeship & Jobs

7.2.Unit 7.1: Preparing for Employment & Self Employment

7.2.1. Unit Objectives

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

1. **Develop Job Readiness Skills**:
2. **Create Effective Job Search Strategies:**.
3. **Prepare for job interviews and networking opportunities.**
4. **Identify potential self-employment ideas and business opportunities.**
5. **Understand Employment Rights and Responsibilities:**
6. **Enhance Personal Branding:**
7. **Develop Financial and Organizational Skills:**

7.2.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.
- Activities (role plays)

7.2.3. Say

Tell the participants that when an interviewer asks you to say something about yourself, he/she is not asking you to present your life history.

• Introduction should be short and crisp, and should present you in a positive light. It should include the following points:

o Any work experience that you might have

o A brief summary of your educational qualifications

o Your strengths and achievements

o Any special projects that you might have been part of

• The following topics should be avoided during an introduction:

o Detailed description of your family (unless you are specifically asked to do so)

o Too much information about your weaknesses

o Information that is not true

7.2.4. 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.

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7.2.5. Role Play

Conduct a role play for the situation given.

Role Play –

• The interviewer will start by asking the interviewee a few generic questions such as:

o What is your name?

o Tell me something about yourself?

o Can you tell me something about your family?

• Then, at the end of the interview, ask the interviewee:

o There are over 200 people who have applied for this job, some with excellent work experience.

Why should I hire you?

7.2.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

7.2.7. Summary

Job Readiness:

Develop skills for seeking and securing employment or starting a business.

Job Search Tools:

Create a professional resume, cover letter, and online presence.

Prepare for job interviews and networking.

Self-Employment:

Identify and explore potential self-employment or business ideas.

Understand the basics of starting and managing a small business.

Workplace Rights

Learn about employment laws, rights, and responsibilities.

Personal Branding:

Build a strong personal brand for career or business growth.

Financial Planning:

Develop essential financial and organizational skills for employment or entrepreneurship.

7.2.8. Exercise

1.What is the first step in preparing for employment?

A) Writing a resignation letter

B) Creating a resume

C) Opening a business

D) Networking with friend

2.Which of the following is NOT typically required for self-employment?

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A) A business plan

B) An employer to answer to

C) Financial management skills

D) Marketing and sales strategies

3.What should be included in a self-employment business plan?

A) The business idea and goals

B) A list of personal contacts

C) A resume

D) A job offer letter

4.True or False: In self-employment, you are responsible for your own business operations, including financial management and legal compliance.

5.True or False: Having relevant qualifications and work experience is the only factor to consider when preparing for employment.

6.True or False: Personal branding is important for both self-employment and traditional employment opportunities.

7.3.Unit 7.2. Understanding Entrepreneurship

7.3.1. Unit Objectives

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

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Discuss 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 the important problem solving traits
14. Discuss ways to assess problem solving skills

7.3.2. Resources

- Whiteboard, erasable marker, board cleaner, projection screen, laptop, speaker, notebook, pen, participant handbook, etc
- Flip chart
- Participant Manual
- Projection screen and PowerPoint presentations.

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- Activities (role plays)

7.3.3. Say

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

7.3.4. 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

7.3.5. Team Activity

Divide the class into small teams (4-5 participants per team).

Each team needs to come up with a unique business idea. Encourage participants to think creatively, focusing on solving a real-world problem.

Teams should discuss and finalize their business idea

Business Plan Development

Teams will work together to develop a simple business plan for their idea. The plan should cover the following key points:

Business Idea: What is the product or service? How does it solve a problem?

Target Market: Who are the customers? What are their needs?

Unique Value Proposition: Why is the business idea different or better than others in the market?

Revenue Model: How will the business make money (e.g., sales, subscriptions, ads)?

Marketing Strategy: How will the business attract customers?

Launch Plan: How will they introduce the business to the mark

7.3.6. Notes for Facilitation

Summarize the important points and terms explained in the session.

- Ask participants if they have any doubts. Encourage them to ask questions.
- Answer questions, as needed, providing concrete and brief answers.
- Tell participants to complete the questions at the end of the unit.
- Ensure that every participant answers all the questions

7.3.7. Summary

Close the discussion by summarizing about the opportunities for entrepreneurs in India

7.3.8. Exercise

1. Which of the following is a good practice for writing a professional email?

A) Using a casual tone and slang

B) Including a clear subject line

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C) Writing long paragraphs without breaks

D) Not using a greeting

2. Which research method is often used to assess market opportunities for a new business?

A) Historical analysis

B) Surveys and questionnaires

C) Personal opinions

D) Guesswork

3. Which of the following is a primary motivation for entrepreneurs?

A) Seeking a stable salary

B) Solving problems and creating value

C) Avoiding risk

D) Working within a corporate structure

4.True or False: An entrepreneur's role in the economy is limited to running a business for profit.

5.True or False: The entrepreneurial mindset involves risk-taking, resilience, and the ability to adapt to challenges.

6. True or False: Entrepreneurship only applies to individuals who start their own businesses and does not include individuals who work within large corporations.