

# MANUFACTURING PRACTICES BETP 1303

## General Safety in Manufacturing practices

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# Lesson Outcomes

Upon completion of this topic, students is expected to be able to :

1. Define the definition of accident and near miss
2. Understand the general information and safe work practice in workshop
3. Describe the general shop safety rule
4. Explain the safe use of hand tools
5. Identify and know various of machinery and machine tool

# Contents

- General information
- General shop safety rule
  - Personal Protection
  - Workshop Environment
  - Safe work practices
  - Worker attitude
- Safe use of hand tools
- Various of machinery and machine tool

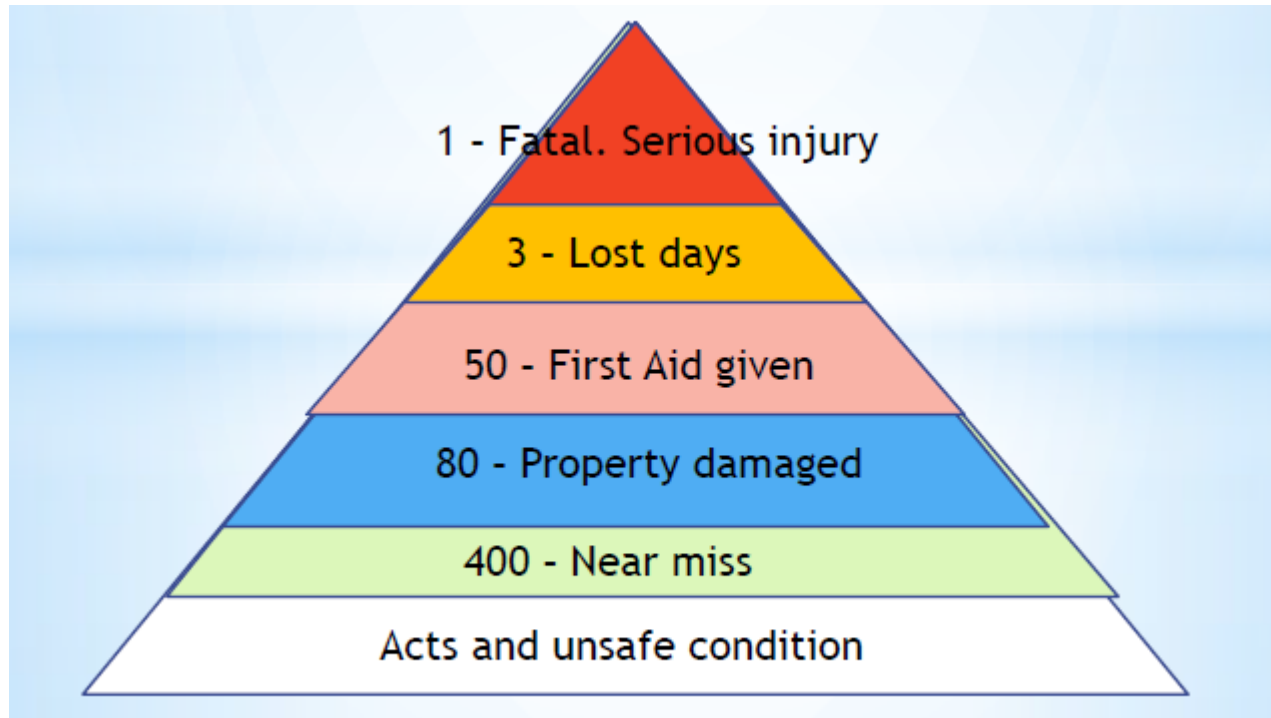
# General Information

- **Accident** is an **unpredicted, unintended** situation in a **series of event occurs** through a **combination of roots** which result in **physical harm** (e.g. injury, illness or diseases) to an individual, **damage to property, loss** or combination of these.

# General Information

- **Near miss** situation is a potential hazard or incident that has not resulted in any personal injury or damage. Near miss situations is contributed from the :
  - ✓ Unsafe Act
  - ✓ Unsafe equipment
  - ✓ Unsafe condition
  - ✓ Unsafe use of equipment.
- If all the unsafe mentioned is not controlled, it can result in a near miss situation, property damage and eventually a severe accident. (Refer to Incident Pyramid)

# General Information



Incident Pyramid

# General Information

HAZARD	EXAMPLES OF POTENTIAL SOURCE HAZARD
Physical	Noise, radiation, temperature
Mechanical	Struck by, pinched, stabbed, fall
Electrical	Using improper socket, exposed wire
Biological	Exposed to virus, bacteria, fungus
Chemical	Exposed to corrosive and toxic chemicals
Fire	Solid material, Flammable liquids and gasses
Ergonomics	Repetitive work
Psychosocial	Stress

## Hazard Categories

# General shop safety rule

- Potential Hazards sources in work shop

## 1) Physical

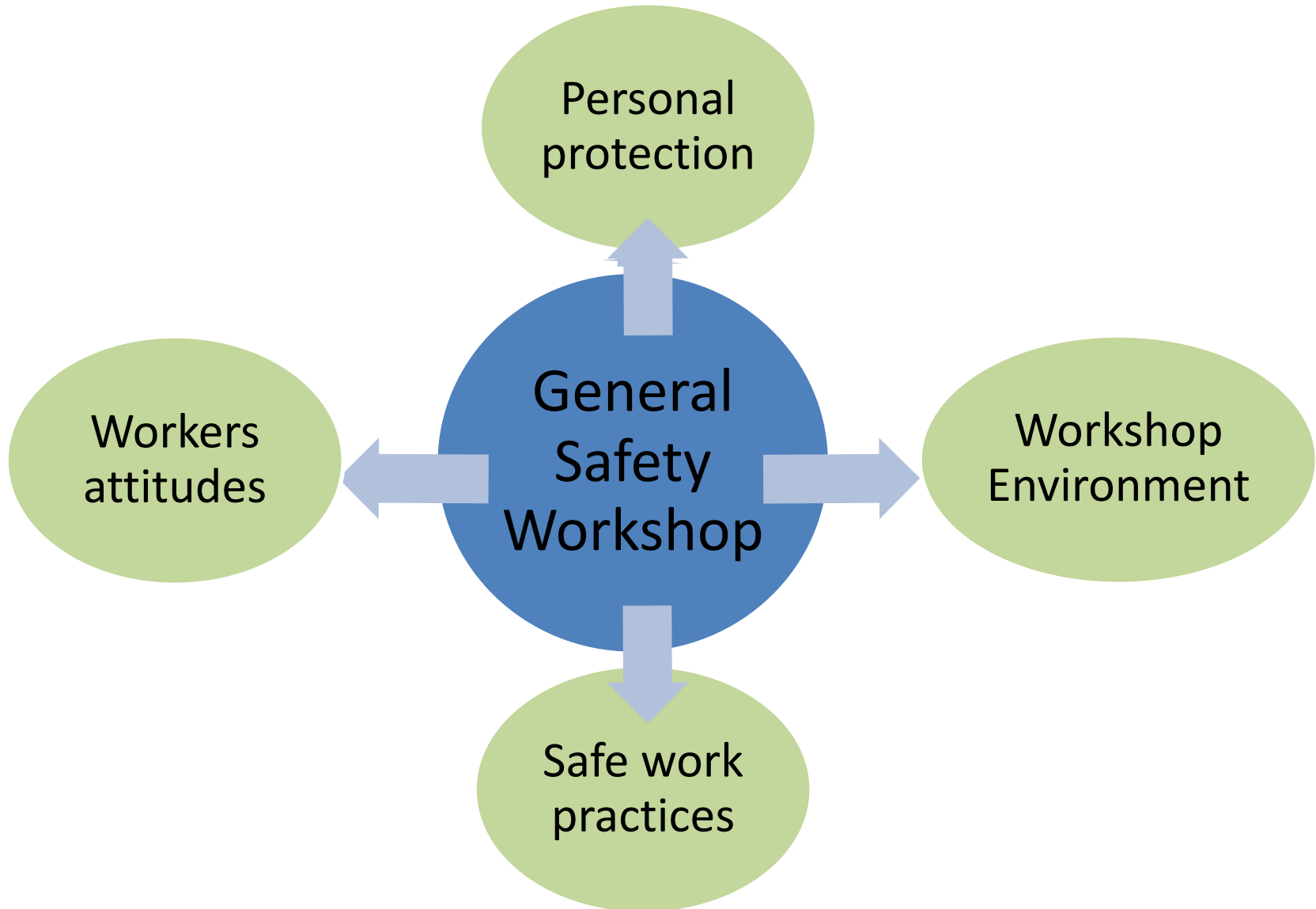
- Oxygen, acetylene, air compressed air/ gases.
- Flying debris grinders, saws and welders
- Pinching, cutting vises and power tools
- Etc.

## 1) Electrical

- Overload too many cord per outlet
- Shock ungrounded tools and equipment
- Spark welders, grinders
- Flammable chemical gasoline, paint thinners
- Etc.



# General shop safety rule



# General shop safety rule

- General Safety rules in <Personal protection>
  - Always wear safety glasses to protect eyes
  - Never wear loose clothing around machines because Loose clothing may be caught in the moving parts of the machine
  - If wearing long sleeved, ensure the sleeves are rolled up and buttoned properly.
  - Open- toe sandals or canvas shoes are not allowed in workshop due to no protection against sharp chips or falling objects.
  - Do not wear jewelries.

# General shop safety rule

- General Safety rules in <Personal protection>
  - If wearing a headscarf it should be worn properly
  - Long hair must be protected by an approved shop cap, head band, or hair net and ensure is neatly tied.

# General shop safety rule

- General Safety rules in <Workshop Environment>
  - Each tools and equipment should have place and been stored in proper condition.
  - Always keep the floor surrounding the machine free from oil, grease, tools and etc.
  - Rectify the fire extinguishers nearest location and know how to use it.
  - Lubricants, oils and waste must be kept in its proper storage containers
  - Use floor matting in front of machinery to prevent operator fatigue during operating the machines

# General shop safety rule

- General Safety rules in <Workshop Environment>
  - Standard operating Standard operation procedures (SOP) must be placed on the machines and easily
  - A proper procedure is needed in case of machine breakdown or out of order
  - First aid box is easily accessible
  - Notify the technicians or lecturer if there any unsafe conditions such as defective tools or equipment
  - No gas leakage (e.g. oxygen/ acetylene) for welding
  - Welding leads must be completely insulated and in a good condition
  - Oxygen and acetylene tanks must be secured in a safe place.

# General shop safety rule

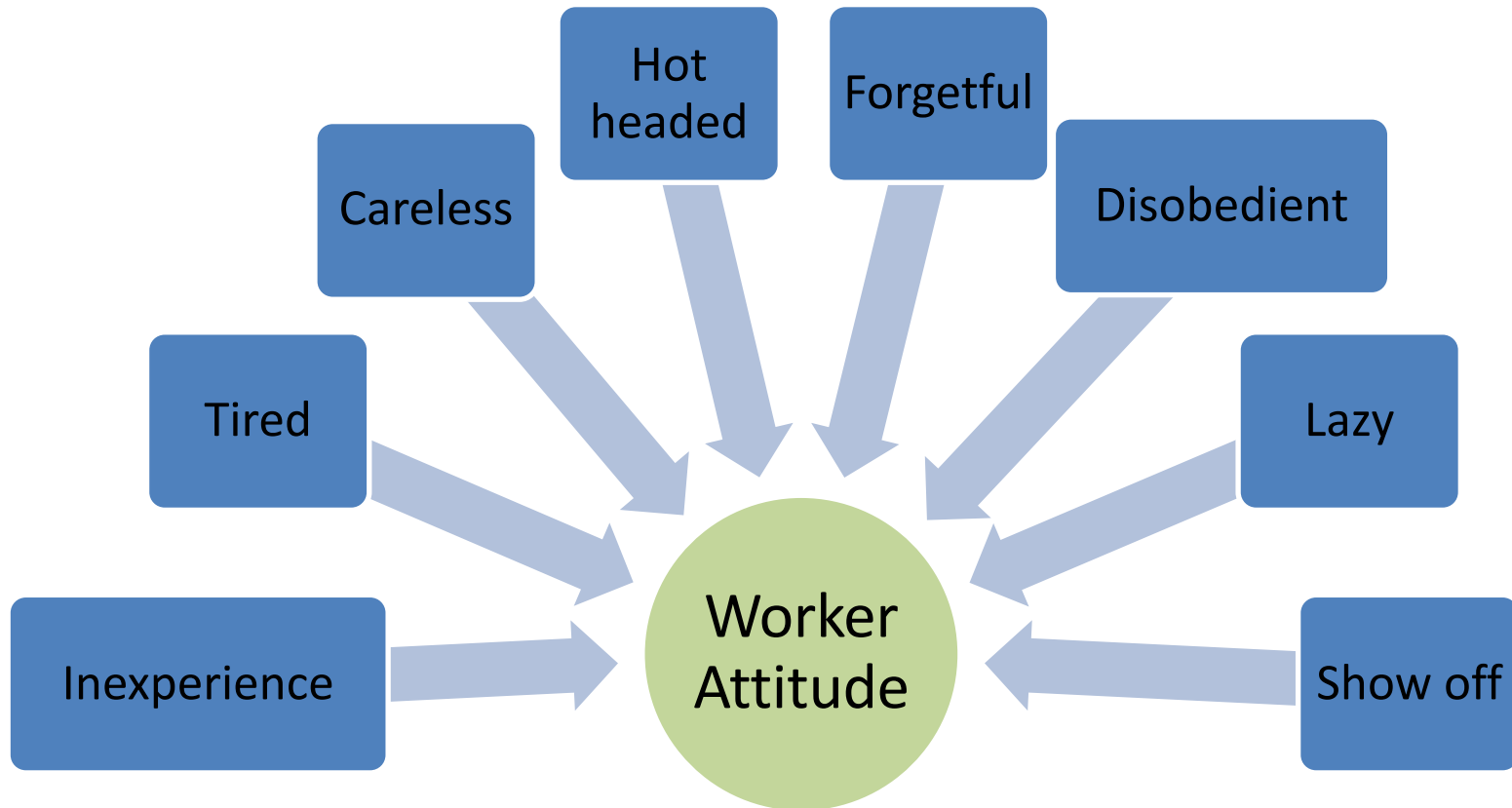
- General Safety rules in <Safe work practices>
  - Do not operate any machine or tools until get proper instruction and permission from the technician or lecturer
  - Always keep hands away from moving parts
  - Never wear gloves when operating the machines
  - Always stop machine before doing the measuring, cleaning or making any adjustments to the parts or machine
  - Never operate a machine unless all safety guards are in place

# General shop safety rule

- General Safety rules in <Safe work practices>
  - Never use a rag near the moving parts of a machine
  - Never use compressed air to clean machines or your clothing and skin
  - Horseplay, playfulness is never allowed in workshop.
  - Never have more than one person operating a machine at the same time
  - Immediately get for first aid when any injury occur
  - While grinding, do not inhale the dust
  - Lifting heavy tools, workpiece, machine accessories in proper ways if necessary
  - Be careful on the spark during starting the fire and proper signage for hot metal after the welding complete

# General shop safety rule

- General Safety rules in <Worker Attitude>





# Safe use of hand tools

- General Safety Precautions to be aware in using Hand tools
  - • **Maintenance of hand tools** - hand tools should be inspected every time before used. Any blunt cutting edge or deformed part should be restored.
  - **Selection of hand tools** – the selected of hand tools should be suitable with the job. The handle of hand tools should be fit the hand of operator. Do not used the hand tools for the purpose other that the are designed for.
  - **Housekeeping of hand tools** – should be stored in tool – rack or tool box. Should performed periodic examination, repair and maintenance by experience / competent operator.

# Safe use of hand tools

- General Safety Precautions to be aware in using Hand tools
  - Safe operating procedures :
    - ✓ Hand tools should be carried out in a proper toolbox or used the tool-belt.
    - ✓ Do not allowed other persons gaining access to the work area where the hand tools are being operated.
    - ✓ Check for any protruding metals parts that may cause damage to hand tools
    - ✓ Precautions should be taken to avoid tools sliding out form hand during operating
    - ✓ Hand tools should be operated in correct posture and strength
    - ✓ Follow the proper steps and procedures when handling the hand tools
    - ✓ Put full of concentration on the job when using the hand tool.

# Various of machinery and machine tool



# Summary

- ✓ General information
- ✓ General shop safety rule
  - Personal Protection
  - Workshop Environment
  - Safe work practices
  - Worker attitude
- ✓ Safe use of hand tools
- ✓ Various of machinery and machine tool