1. Role of Safety Officer and Safety Committee

- Safety Officer:
- • Conducts routine workplace inspections to identify hazards.
- • Ensures compliance with occupational health and safety laws and standards.
- • Prepares and updates safety manuals, procedures, and emergency response plans.
- • Provides safety training and awareness programs to employees.
- • Investigates accidents, near-misses, and unsafe acts, and suggests preventive measures.
- • Maintains safety performance records and submits reports to management.
- • Acts as a liaison between management and external regulatory agencies.
- Safety Committee:
- • A representative body dedicated to addressing safety issues.
- • Provides a platform for employees to raise safety concerns and complaints.
- • Encourages employees to actively participate in safety programs.
- • Plans and monitors implementation of safety initiatives across departments.
- • Motivates workers to adhere to safety standards through campaigns and meetings.
- • Signals to employees that the organization prioritizes their wellbeing.
- • Facilitates cooperation between management and workers on safety issues.

2. Responsibilities of Supervisor

- • Directly responsible for worker safety and compliance with company rules.
- • Ensure workers use proper PPE and follow standard operating procedures.
- • Regularly inspect work environment to detect hazards and unsafe conditions.
- • Provide orientation and on-the-job safety training to new workers.
- • Identify unsafe acts such as negligence or improper machine handling.
- • Report accidents, incidents, and unsafe situations promptly.
- • Motivate workers by promoting a positive safety culture.
- • Monitor machine use and ensure that safety guards are in place.
- • Enforce discipline and corrective measures when rules are violated.
- • Act as the communication channel between employees and management.
- • Lead by example by demonstrating safe working practices.

3. Health, Safety and Wellness

- Health:
- • Includes both physical and mental wellbeing of employees.
- • Prevents occupational illnesses like respiratory diseases, skin problems, or poisoning.
- • Promotes a balanced lifestyle, fitness, and reduced absenteeism.
- Safety:

- • Protection against hazards, accidents, and injuries at work.
- • Includes safety equipment, proper work procedures, and hazard elimination.
- Wellness:
- • Broader concept including stress management, work-life balance, and morale.
- • Programs like yoga, health check-ups, and counseling promote wellness.
- Combined Impact:
- • Improves worker productivity, satisfaction, and overall organizational performance.

4. Unsafe Acts and Unsafe Conditions

- Unsafe Acts (caused by workers):
- • Failure to wear PPE such as helmets or gloves.
- • Operating machinery without proper training.
- • Horseplay, rushing, or ignoring safety signs.
- • Disabling or bypassing machine safety guards.
- Unsafe Conditions (caused by workplace environment):
- • Slippery floors, cluttered aisles, and poor housekeeping.
- • Defective tools or unguarded machinery.
- • Poor lighting or ventilation causing visibility/respiratory risks.
- • Exposed electrical wiring or leaking chemicals.
- • Overcrowded workspace leading to fire or evacuation hazards.

5. Respiratory Protective Equipment (RPE)

- • RPE protects workers from inhaling harmful substances like dust, fumes, vapors, and toxic gases.
- • It acts as a barrier when hazards cannot be eliminated through engineering controls.
- • Types of RPE include:
- - Air-Purifying Respirators (APR): Filter contaminants through cartridges/filters.
- - Chemical Cartridge/Gas Mask Respirators: Protect against chemical vapors and gases.
- - Powered Air-Purifying Respirators (PAPR): Use a blower to pass contaminated air through filters.
- - Atmosphere-Supplying Respirators (SCBA, SAR): Provide clean air from external sources.
- • Example – APR: Workers in chemical plants use APRs with suitable cartridges for protection against fumes.
- • Limitations – May cause discomfort, requires fit testing, and effectiveness depends on correct use.

6. PPE Safety Features for Head and Eye Protection

- Head Protection:

- • Hard hats protect from falling objects, bumps, and electrical contact.
- • Classes of hard hats:
- - Class G (General): Impact and penetration + low-voltage protection (up to 2200V).
- - Class E (Electrical): High-voltage protection (up to 20,000V).
- - Class C (Conductive): Comfort-focused, no protection from impact/electrical hazards.
- • Safety features include shock absorption, chin straps, and durable shells.
- Eye Protection:
- • Safety glasses – Protect against flying particles and moderate impacts.
- • Goggles – Provide sealed protection from dust, chemicals, and splashes.
- • Prescription safety glasses – Incorporate vision correction with protection.
- • Face shields – Protect against dust and chemical splashes (not for impact).
- • Welding shields – Protect from sparks, molten metal, and radiant heat/light.
- • Laser safety goggles – Protect from harmful laser and UV exposure.
- • Key features: Durability, clear vision, proper fit, and compatibility with other PPE.

7. Benefits of Housekeeping and 5S Concepts

- Benefits of Good Housekeeping:
- • Cleaner, safer, and well-organized work environment.
- • Reduces risks of slips, trips, and falls.
- • Improved utilization of floor space and better workflow.
- • Reduced material wastage and better inventory control.
- • Lower equipment breakdowns due to better maintenance.
- • Improves employee morale and health.
- • Prevents fire hazards and improves overall hygiene.
- 5S Concepts:
- • Sort – Identify and remove unnecessary items from workplace.
- • Set in Order – Arrange essential items for easy access and logical workflow.
- • Shine – Regular cleaning and maintenance of workplace and equipment.
- • Standardize – Establish routines, schedules, and procedures for orderliness.
- • Sustain – Make housekeeping practices a habit and part of organizational culture.
- • Overall Impact – Continuous improvement in safety, efficiency, and productivity.

8. Safety Performance Indicators in Industry

- • Accident Frequency Rate – Measures number of disabling injuries per 1 million man-hours worked.
- • Accident Severity Rate – Indicates number of days lost due to accidents per 1 million man-hours worked.
- • Incidence Rate – Ratio of injuries to number of persons employed.

- • Lost Time Injury (LTI) – Number of accidents that cause workers to miss workdays.
- • General Indicators – Near-miss reporting, safety training participation, and hazard reporting trends.
- • Importance – Helps evaluate safety performance, compliance with standards, and areas needing improvement.

9. Theories of Accident Causation & Factors

- Theories of Accident Causation:
- • Domino Theory – Accidents occur in a sequence of preventable events; removing one domino prevents accidents.
- • Human Factors Theory – Focuses on human errors such as overload, inappropriate actions, or negligence.
- • Accident/Incident Theory – Expands human factors with ergonomic traps and management failures.
- • Systems Theory – Accidents result from interactions between humans, machines, and environment.
- • Combination Theory – Accidents often occur due to multiple factors together.
- Factors Responsible for Industrial Accidents:
- • Unsafe acts by workers (carelessness, ignoring PPE).
- • Unsafe workplace conditions (poor lighting, faulty machines).
- • Inadequate safety training and lack of awareness.
- • Poor supervision and weak enforcement of safety rules.
- • Fatigue, stress, and lack of wellness programs.
- • Defective tools or absence of safety equipment.