

**Unit - I Principles of accidents prevention**

- i. Definition: Incident, accident, injury, dangerous occurrences, unsafe acts, unsafe conditions, hazards, error, oversight, mistakes, etc.
- ii. Accident Prevention : Theories / Models of accident occurrences, Principles of accident prevention, Accident and Financial implications, Hazard identification and analysis, fault tree analysis, Event tree analysis, failure modes and effects analysis, Hazop studies, Job safety analysis - examples ,Plant safety inspection - objectives and types check procedure inspection report.

**Unit - II Theories and principles of accident causation**

- i. The effect of accident, unsafe act, unsafe condition, unpredictable performance, Human factors contributing to accidents - causes for unsafe acts,
- ii. Safety and psychology -Theories of motivation and their application to safety. Consequences of accident, accident prevention programmers, Role of safety,

**Unit - III First aid**

- i. Body structure and Functions, Position of causality, the unconscious casualty, fracture and dislocation, Injuries in muscles and joints, Bleeding, Burns, Scalds and accidents caused by electricity, Respiratory problems, Rescue and Transport of Casualty. Cardiac massage, poisoning, wounds.
- ii. Personal Protective Equipments: Need, selection, supply, use, care and maintenance, Personal protective devices for head, ear, face, eye, foot, knee and body protection, Respiratory personal protective devices.

**Unit IV - Plant layout for safety**

- i. Design and location, distance between hazardous units, colour coding, Lighting, ventilation, Flow charts, pilot plant applications and machine guarding and it's types, Housekeeping.
- ii. Accidents related with maintenance of machines, maintenance of machines-advantages.
- iii. Work permit systems - Significance of documentation.

**Reference Books:**

1. Frank P Lees – Loss of prevention in Process Industries, Vol. 1 and 2, Butterworth-Heinemann Ltd., London (1991).
2. R. K. Jain and Sunil S. Rao, Industrial Safety , Health and Environment Management Systems, Khanna publishers , New Delhi (2006)