

SWAMI VIVEKANAND UNIVERSITY, SIRONJA SAGAR (M.P.)



SYLLABUS

For

PG DIPLOMA IN INDUSTRIAL SAFETY

Course Code: PGDIS

**Department of Fire Safety & Disaster
Management**

Duration of Course : 1 Year

Examination Mode : Yearly

Examination System: Non-Grading

**Swami Vivekanand University, Sironja Sagar
(M.P.) 2015-16**



Faculty :Science

Department :Fire Safety & Disaster Management

Session: 2015-16

Course Name: PG Diploma in Industrial Safety

Course Code: PGDIS

Semester/Year : (One Year)

Course Code	Title of the Paper	Distribution Of Marks					
		Theory		Practical		Total	Marks Obtained
		Max	Min	Max	Min		
PGDIS-101	FUNDAMENTALS OF FIRE SCIENCE	100	36	-	-	100	
PGDIS -102	INDUSTRIAL SAFETY MANAGEMENT	100	36	-	-	100	
PGDIS -103	FIRE PROTECTION, EQUIPMENTS APPLIANCES	100	36	-	-	100	
PGDIS -104	RISK MANAGEMENT AND HAZARD CONTROL SYSTEM	100	36	-	-	100	
PGDIS -105	DISASTER MANAGEMENT, EMERGENCY PLANING & FIRST AID	100	36	-	-	100	
PGDIS -106	LEADERSHIP & COMMUNICATION	100	36	-	-	100	
PGDIS -107	OCCUPATIONAL HEALTH, FIRST AID CASUALITY MANAGEMENT	100	36	-	-	100	
PGDIS -108	PRACTICAL			100	36	100	
Grand Total		700		100		800	



FUNDAMENTALS OF FIRE SCIENCE
Course Code :PGDIS-101

UNIT- I

Marks: 20

Combustible Matter, Flammable/Combustible Liquids, Classification of Petrochemicals Liquids as Per NFPA, Combustible Gases.

UNIT- II

Marks: 20

Combustion and It's Types ,Oxygen Content in Air by Weight And Volume, Combustion of Solid ,Liquid and Gases Exothermic and Endothermic Reactions, Jet and Flash, Flames and its types, Premixed ,Diffusion, Turbulent Stationary and Propagating Flames Burning Velocity ,Flash Point, Fire Point, Transmission of Heat by Conduction Convection and Radiation.

UNIT- III

Marks : 20

FIRE: Definition of Fire, Fire Triangle, Tetrahedron of Fire, Classification of fires, Types of Extinguishing Media of Agent, Principles of Fire Extinguishing Methods Cooling, Starvation ,Smothering(Blanketing),Retarding Chain Reaction.

FIRE EXTINGUISHING MEDIA OR AGENTS:

Extinguishing Property of Water, Characteristics of Ideal Liquid Extinguishing Agent, Various Forms of Water Like Solid Stream, Fog and Spray

UNIT- IV

Marks: 20

Types of Foam Concentrate, Protein, AFFF, Fluoro Protein, Alcohol Types, Low, Medium and High Expansion Foam, Physical and Chemical Properties of Foam

DRY CHEMICAL POWDER:

Various Types of Dry Chemical Powders and Their Uses, Carbon Dioxide, Halons, FM200 and Similar Extinguishing, Agents

UNIT-V

Marks: 20

Sprinklers Automatic Alarms Water Tenders, Fire Extinguishers, Fire Prevention and Inspection Procedures, Fire Protection Law as/Bye Laws.

Text Books

- 1) Carl Goodson, "Essentials of fire fighting" Fire protection publications; 5th edition
- 2) Pann Well, "Fire engineering's skill drills for Fire Fighter", Pann Well; 1st & 2nd edition.



INDUSTRIAL SAFETY MANAGEMENT
Course Code : PGDIS(102)

UNIT- I

Marks: 20

Henrichs Axioms Of Industrial Safety ,Concepts Of Safety, Organization For Safety, Organization, Definition, Need & Principles Organizing For Health ,and ,Environmental, Activities, Organization Structure, Function & Responsibilities

UNIT- II

Marks: 20

Directing For Safety, Direction, Definition, Process, Principles and Techniques Leadership, Role, Function And, Attributes of a Leader.

UNIT- III

Marks: 20

Safety Management System, Objectives of Health, Safety and Environment Policy, Responsibility for Implementation of HSE Policy

UNIT- IV

Marks: 20

Role of Occupier and Factory Manager, Factory Safety Committee, Structure and Functions and Working Tenure Details Etc

UNIT- V

Marks: 20

ACCIDENT PREVENTION :Definition : Incident, Accident, Injury , Dangerous occurrence ,Unsafe Act, Unsafe, Conditions, Hazards, Error, Oversight, Mistake ,Near Miss ,Electricity & Hazards ,Of Electricity ,Explosives And ,Transportation Safety.

Text Books

1. Fundamentals of Industrial safety & health by K.U. Mistry.
2. Factories Act 1948



**FIRE PROTECTION EQUIPMENTS
APPLIANCES
Course Code : PGDIS (103)**

UNIT- I

Marks: 20

Properties of Hazardous Chemicals & Handling Procedure, Fixed Fire Fighting Installation.

UNIT- II

Marks: 20

Fire Hose and Hose Fittings, Hydrants and Water Supply.

UNIT- III

Marks: 20

Fire Protection Hydraulics, Pumps, Abstracts from Factories Act, 1948, Fire Protection Law Etc.

UNIT- IV

Marks: 20

Hazards in Special Area and Fire Protection, Turn Table Ladder, Fire Investigation And Plan Reading.

UNIT- V

Marks: 20

Small gears, Special Appliance, Transportation and Storage of Hazardous Goods.

Text Books

- 1) Carl Goodson, "Essentials of fire fighting" Fire protection publications; 5th edition
- 2) Pann Well, "Fire engineering's skill drills for Fire Fighter", Pann Well; 1st & 2nd edition.



RISK MANAGEMENT AND HAZARD CONTROL SYSTEM
Course Code :PGDIS(104)

UNIT- I

Marks: 20

Hazards Definition, Risk Management, Hazards Control System, Fault tree Analysis, Failure mode and effect Analysis, Physical and chemical properties of hazardous materials, Major industrial hazards.

UNIT- II

Marks: 20

Types and consequences of major industrial hazard, Effects on human body, Stages of combustion, Hazards of combustion, Stability and inflammability, Petrochemicals and other hydrocarbons, Tank fire – storage tank, trucks, service stations, High pressure pipe lines.

UNIT- III

Marks: 20

Pressurized and liquefied gases, Natural gas & Petroleum gases, Refrigerants etc., Corrosiveness, Radioactive hazards.

UNIT- IV

Marks: 20

Special precaution for handling, Emergency preparedness, Pesticides, Explosion.

UNIT- V

Marks: 20

Deflagration and detonation of gas, Dust explosion, Confined and unconfined vapor cloud explosion, Safety Management and legislation, Functions of safety management, Factories Act 1948 (chapter 3, 4, 5), Workmen compensation Act 1923 (objectives and coverage's).

Text Books

N. K. Jain



**DISASTER MANAGEMENT,
EMERGENCY PLANING & FIRST AID
Course Code : PGDIS (105)**

UNIT- I

Marks: 20

Introduction & Classification of Disasters, Inter-relationship between Disasters and Development, Disaster Risk Management in India, Hazard and Vulnerability profile of India, Components of Disaster Relief: Water, Food, Sanitation, Shelter, Health, Waste Management.

UNIT- II

Marks: 20

On site Emergency Planning, Emergency Alarm System ,Emergency Control Room ,Key personnel ,Emergency Control Program, Off site Emergency Planning ,Mutual Aid Scheme, Emergency Evacuation, Security and Media management.

UNIT-III

Marks: 20

Hazard Communication, Material Safety Data Sheet (MSDS), and Use of hazardous and toxic substance, Storage and Handling, First Aid, Introduction.

UNIT- IV

Marks: 20

Action at Emergency, The practice of First Aid, Principles of First Aid, Training in First Aid, General rules of First Aid, Shocks.

UNIT- V

Marks: 20

Control of bleeding, Burns and Scalds, Heart Attack, Resuscitation, Disorder of Circulation, Dressing & Bandages, Handling & transport of injured, Emergency First Aid.

Text Books

N. K. Jain



LEADERSHIP & COMMUNICATION

Course Code : PGDIS(106)

UNIT- I

Marks: 20

Definition of leadership, Organization, Elements & Principles of good organization, Communication, Methods of Communication, Speaking skills, written communication, Formal and Informal reports.

UNIT- II

Marks: 20

Safety communication, Managerial communication, Communication with employees with conducting training, Emergency communication, Essentials of Grammar.

UNIT- III

Marks: 20

Parts of Speech, Types of Correspondence, Receipt and Dispatch of Mail, Types of Letters- Formal / Informal, Importance and Function.

UNIT- IV

Marks: 20

Group Discussion & Presentation, Presentation Skills, Voice & Picture Integration, Body Language, Presentation Plan.

UNIT- V

Marks: 20

Employers Expectations, General Etiquette, Dressing Sense, Postures & Gestures.

Text Books

N.K.JAIN



**OCCUPATIONAL HEALTH, FIRST AID &
CASUALTY MANAGEMENT**
Course Code : PGDIS(107)

UNIT- I

Marks: 20

Introduction to Plant, Basic of Fire Protection, Design Criteria and Fire Protection Facilities.

UNIT- II

Marks: 20

Definition of Occupational Health & Safety.

UNIT- III

Marks: 20

The practice of First Aid, Control of bleeding, Burns and Scalds, Heart Attack.

UNIT- IV

Marks: 20

Disorder of Circulation, Dressing & Bandages, Handling & transport of injured.

UNIT- V

Marks: 20

Emergency Action Plan, Line Diagram of Emergency Action Plan, Drawings.

Text Books

N.K.JAIN



Practical
Course Code : PGDIS (108)

1. Fire protection introduction,
2. Ladders, Hose,
3. Detection of fire ,
4. Extinguishing methods
5. First aid fire fighting equipments ,
6. Fire bucket,
7. Fire beater,
8. Hose reel hose ,
9. Portable extinguisher ,
10. Construction ,
11. Operation ,
12. Maintenance,
13. Refilling.