



ANNAMALAI UNIVERSITY
DIRECTORATE OF DISTANCE EDUCATION

Diploma in Fire and Safety

REGULATIONS AND SYLLABUS

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DIPLOMA IN FIRE & SAFETY (DFS)

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REGULATIONS

Conditions for Admission

Candidates for admission to **One year Diploma** Course in Fire & Safety should have passed one of the following examinations:

1. 10th standard or S.S.C or Intermediate or equivalent.

Medium of Instruction

English will be the medium of instruction for the course.

Scheme of Examinations

There will be two examinations each year, one regular, one supplementary.

Course	Subjects	Hours	Marks	Minimum for a pass
I	Fire Engineering	3	75 + 25	40
II	Industrial Safety	3	75 + 25	40
III	Safety in Construction Activities	3	75 + 25	40
IV	Occupational Health & Environment	3	75 + 25	40

Passing Requirements

A candidate passing in all subjects will be classified as follows:

	Marks	Classification
a)	40% and above, but less than 50%	Pass
b)	50% and above but less than 60%	Second Class
c)	60% and above, but less than 75%	First Class
d)	75% and above	First Class with Distinction

A candidate will be declared to have passed the examination in First Class or First Class with Distinction if he/she has passed all the courses in the first appearance and obtained an aggregate of not less than 60 or 75% of marks respectively.

Personal Contact Programme

The Personal Contact Programme for the theory portions will be conducted at different centres for 8 days out of which 6 days are compulsory. The practical contact programme will be conducted for 4 days. Cent percent attendance is compulsory for the practical contact programme.

SYLLABUS
COURSE – I: FIRE ENGINEERING

Aim

The course is aimed at making the student understand the fire hazards that happen in various industries and methods of preventing them. It also aims at making aware the techniques and fire fighting equipment available to deal with such hazards for prevention / control.

Objectives

On completion of the course, the student is expected to be familiar with the techniques of safe guarding the men and machinery in industries both from injury/ accident and fire risk.

Unit – I

Fire fighting appliances, Hose and Hose fittings, Foam and foam making equipments, Pumps and primers, IC Engine and Cooling systems, Hydrants and hydrant fittings.

Unit – II

Fire alarm systems, Building construction – Safe guards from fire risks / prevention, Chemistry of combustion, Chemistry of Heat & Mechanism, Types of fires and extinguishment, Fixed fire fighting installations.

Unit – III

Major FF appliances and special installations, Fire crash tender, Fire alarm systems, Safety in storage of flammable and explosive materials & transportation / Handling, First aid for burns and fire fighting appliances – basic usage.

Unit – IV

PPE's for fire fighting – proximity suits – Escape measures etc., Chemical fires and their prevention, Air craft & ship fires & their prevention.

Unit – V

National and International codes on fire, Fundamentals of civil engineering, Fire – rescue and first aid.

Reference Books

1. Fire Protection Hand Book – Publication: National Fire Protection Association USA Author: Quincy – Massachusetts
2. Fire and explosion Hazards Handbook of Industrial Chemicals Publication: Jaico Publishing House Author: Tatyana A. Devletshina & Nicholas P. Cheremisinoff, Ph. D.
3. Industrial Fire Protection Hand Book – Publication: CRC Press, Boca Raton, FL. Author: Schroll, R. C, 2002.

4. Fire Loss Control-A Management Guide – Publication: Marcel Dekker Inc, New York – Author: Planer, R. G, 1990.

COURSE – II: INDUSTRIAL SAFETY

Aim

The course is aimed at making the student aware of various safety aspects in industry as regards to work execution activity. It also aware of him of the various hazards, risks and precautions to be exercised in industry site works.

Objectives

On completion of the course the student is expected to be aware of industrial accidents, processes & job related occupational hazards & importance of safety knowledge in preventing them.

Unit – I

Fundamentals of safety – safe working practices, Accidents, Types of Accidents – causes & prevention, Work permit systems, Accident investigation and reporting, Duties of Safety Officer, Safety Policy.

Unit – II

High pressure air – Hazards & Safety in usage, Excavation – Risks & Control measures, Legal aspects of safety – Laws related to safety Factories Act 1948, Electrical Safety – Earthing standards, Effects of shock on human body, Lockout & tagout systems, static electricity risks.

Unit – III

Safety Management – Emergency control plan, PPE's – Maintenance and upkeep of, Hazardous properties of chemicals – Protection & related risks, Mechanical Hazards – Machine guards – Importance of Good House keeping, Manual Lifting, Stacking, Carrying of heavy machineries.

Unit – IV

Handling & Storage of compressed gas cylinders, Work in confined places, Risks, Hazards and control measures, Risks in welding, Gas cutting, Grinding, Sand blasting & other hot works & accident prevention measures, Radiation hazards.

Unit – V

Transportation & Storage of Hazardous materials, MSDS, Threshold Limits, Explosive limits of flammability, PPE's usage for protection, Control & safe guards against dust, fumes and vapors in work spots, Road safety & heavy vehicle movement.

Reference Books

1. ABC of Industrial Safety Remember ABC Publication: MEEDS Author: V P M Mani.
2. Dangerous Properties of Industrial Materials Author: N Irving sax
3. Safety, Security and Risk Management – Singh U. K.

4. Industrial Safety Management Publication: Tata Mc Graw-Hill Publishing Company Ltd. Author: L. M. Deshmukh
5. Industrial Accident Prevention – Publication: Mc Graw-Hill – Author: Herbert William Heinrich.

COURSE – III: SAFETY IN CONSTRUCTION ACTIVITIES

Aim

The course is aimed at making the student aware of hazards & risk aspects in construction activity. It also highlights his commitment to safety procedures and the hazards he has to face on construction sites.

Objectives

On completion of the course the student is expected to be aware of industrial accidents, processes & job related hazards on construction site & importance of safety measures, implementation of safety programme.

Unit – I

Work at heights – scaffoldings / ladders, Type of scaffolds, safety requirements, design and load factors. Defects & inspection norms, Types of ladders, upkeep, defects and good maintenance tips.

Unit – II

Rigging – slings, Hoists, winches, Crane & Lifting equipment operations, Safety in paint mixing, solvent handling & paint storage, risk & control measures.

Unit – III

Excavations, risks, earth movers etc., Safety in heavy machinery / equipment movement, vehicle / mobile equipment inspection checklist.

Unit – IV

Mechanical Hazards and Hot work safety – Grinding, welding & sand blasting, Precautions in usage of portable Grinders, Drilling machines, Cold cutting machines, Jack hammers etc.

Unit – V

Safety in Hazardous areas – Tagging & Barricade – Warning signs etc., Precautions in usage of high pressure compressed air, Pneumatic tools.

Reference Books

1. Sp 70-2001 Hand Book of Construction Safety Practices, Bureau of Indian Standards, New Delhi.
2. Construction Safety – Publication: Prentice Hall- Author: Jimmie Hinze, 1997.
3. Safety, Security and Risk Management – Singh U. K.

COURSE – IV: OCCUPATIONAL HEALTH AND ENVIRONMENT**Aim**

The course is aimed at making the student aware of risk, hazards, accidents and illnesses related to common day to day, industrial activities and jobs and ways to prevent / protect themselves from such situations. It also highlights man commitment to environmental well – being.

Objectives

On completion of the course, the student is expected to be familiar with occupation related illnesses / hazards and preventive / control measures there of. He is also made aware of his obligation towards environmental preservation.

Unit – I

Fundamentals of occupational health, Occupational Diseases / Hazards in the work site and control measures.

Unit – II

Soil, water and Air pollution – causes and preventive measures, Land – Degradation and means of prevention, Water table depletion, Pollution Monitoring Instruments.

Unit – III

Wild life conservation, Noise pollution and its abatement, Effect of noise on human and environment - Industrial lighting, ventilation.

Unit – IV

Industrial Health Monitoring – Legal aspects, Factories Act and Central Pollution Control Board.

Unit - V

First aid and Industrial Hygiene, Waste management and disposal of hazardous waste, Water conservation, Harvesting & treatment.

Reference Books

1. Industrial Safety Health and Environmental Management system
Publication: Khanna Publishers Authors: R.K Jain and Sunil S. Rao.
2. Industrial Safety and Pollution Control Handbook – Nagaraj. J
3. Environmental Pollution Control Engineering, Author: C S Rao, Wiley Eastern Ltd.,