



ANNAMALAI UNIVERSITY
DIRECTORATE OF DISTANCE EDUCATION

**P.G.Diploma in Health, Safety
& Environment**

REGULATIONS AND SYLLABUS

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**P.G.DIPLOMA IN HEALTH, SAFETY & ENVIRONMENT (PGDHSE)
REGULATIONS AND SYLLABUS**

REGULATIONS

Conditions for Admission

Candidates for admission to **One year P.G. Diploma** Course in Health, Safety and Environment should have passed one of the following examinations:

1. Bachelors Degree in Science (Any Branch)
2. Diploma (Three years) / Degree in any branch of Engineering or Technology 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	Industrial Safety	3	75 + 25	40
II	Safety in Construction	3	75 + 25	40
III	Occupational Health	3	75 + 25	40
IV	Environment and Pollution	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 10 days out of which 7 days are compulsory.

SYLLABUS
COURSE – I : 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 makes him to know 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, Accidents, causes, classification, Investigation reports, preventive action, Legal aspects of safety – Factories Act 1948.

Unit – II

Work permit systems – Types of permit with details of each, Personal Protective Equipments, Hazard Analysis.

Unit – III

Risk Assessment, Emergency Control Plan – Safety Policy, Proper usage & maintenance of tools, Industrial psychology.

Unit – IV

Properties of Hazardous, toxic, flammable materials, Handling, transportation, usage of chemicals hazardous to humans.

Unit – V

Risks in confined places – Control measures & PPE's to be used, Threshold limits of hazardous materials / gases & flammable limits of inflammables, Handling, storage and usage of high pressure gas cylinders – Risks & precautions. OHSAS – 18001 and OSHA – Introduction – OH & S Policy – Process Safety Management (PSM) as per OSHA performance measurements to determine effectiveness of PSM.

Reference Books

1. Industrial Safety Health and Environmental Management system Publication: Khanna Publishers, Authors: R.K Jain and Sunil S. Rao
2. Industrial Safety Management Publication: Tata Mc Graw-Hill Publishing Company Ltd. Author: L. M. Deshmukh
3. ABC of Industrial Safety Remember ABC Publication: MEEDS Author: V P M Mani.
4. Industrial Accident Prevention – Publication: Mc Graw-Hill – Author: Herbert William Heinrich.

5. Fire and Explosion Hazards Handbook of Industrial Chemicals Publication: Jaico Publishing House Author: Tatyana A. Devletshina & Nicholas P. Cheremisinoff, Ph. D.

COURSE – II: SAFETY IN CONSTRUCTION

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

Risks in Hot works execution like welding, gas cutting, grinding, sand blasting etc. – PPE's to be used and control measures needed, Precautions in usage of high pressure, compressed air, pneumatic tools, jack hammers etc.

Unit – II

Work at heights, scaffoldings, Types of scaffolds, safety requirements, design & load factors and good maintenance tips, defects, inspection, Ladder safety etc.

Unit – III

Hazards in mechanical handling of equipments, Lifting techniques, rigging safety, slings, hoists, chain blocks, pulleys, derricks and crane operations.

Unit – IV

Safety in mobile equipment usage, cranes, Fork lift trucks, poclains, tippers etc., Mobile equipment inspection checklist.

Unit – V

Safety in Hazardous areas – tripping, slipping & impacting, Common on – site injuries & their prevention / control / treatment, Precautions in paint & Solvent handling, Precautions in usage of portable grinders, drilling machines, cold cutting machines etc.

Reference Books

1. Hand Book of Construction Safety Practices, Bureau of Indian Standards, New Delhi, 2001.
2. Construction Safety – Publication: Prentice Hall- Author: Jimmie Hinze, 1997.

3. ABC of Industrial Safety Remember ABC Publication: MEEDS Author: V P M Mani.
4. Electrical Safety, Fire Safety Engineering and Safety Management– Rao.S

COURSE – III: OCCUPATIONAL HEALTH

Aim

The course is aimed at making the student aware of various safety aspects as regards to workers occupational health. It also highlights the occupational hazards he has to face on job sites & preventive / control measures needed.

Objectives

On completion of the course the student is expected to be aware of accidents, processes & job related occupational hazards & importance of measures to protect himself against the same.

Unit – I

Definition, need for occupational health, monitoring, Ergonomics – study.

Unit – II

Occupational related common diseases, ailments and control actions needed – managements obligations – Legal aspects.

Unit – III

Industrial lighting and ventilation, Importance of industrial hygiene and good house keeping, Emergency planning and response.

Unit – IV

Basic First aid for common on – site ailments / injuries, Proper care of ear, eyes, throat, teeth and skin, Community health.

Unit – V

Legal aspects of occupation related diseases / injuries, Medical surveillance and facilities to workmen, Compensation and rehabilitation, Yoga for health and stress free life.

Reference Books

1. Industrial Safety Health and Environmental Management system Publication: Khanna Publishers Authors: R.K Jain and Sunil S. Rao
2. Safety, Security and Risk Management – Singh U. K.
3. Electrical Safety, Fire Safety Engineering and Safety Management – Rao. S

COURSE – IV: ENVIRONMENT & POLLUTION

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

Importance of environment conservation, Effect of Pollution on Man and environment - Concept and Scope of Environmental Chemistry, Formation of Ozone in the Stratosphere – Natural Cycles of Environment Hydrological, Oxygen, Nitrogen, Phosphorous, Carbon and Sulphur Cycles – Radio –Nuclide in the environment

Unit – II

Causes of environmental degradation – and control actions recommended, Solid Waste Management – Sources, Classification of Solid Wastes – Methods of collection – Public Health aspects – Disposal methods.

Unit – III

Water pollution – Classification of Water pollutants – Characteristics of Waste water – Treatment methods – Sedimentation, Coagulation, Equilization,

Neutralisation, Aerobic and Anaerobic processes – Evaporation, Ion Exchange, Chemical Precipitation and Electro dialysis

Unit – IV

Air pollution – Classification of Air pollutants - Climate change, Acid rain, Photo-chemical smog and global warming - Air pollution control methods and equipments source correction method. Cleaning and removal of gaseous effluents.

Unit – V

Sources of Noise & Vibration in Industries and in Environment- Control methods – Effects of Noise and vibration on Human and environmental systems - Wild life conservation, Deforestation & land degradation. Legal aspects of pollutions – laws.

Reference Books

1. Industrial Safety Health and Environmental Management system
Publication: Khanna Publishers Authors: R.K Jain and Sunil S. Rao
2. ABC of Industrial Safety Remember ABC Publication: MEEDS Author: V P M Mani.
3. Industrial Safety and Pollution Control Handbook – Nagaraj. J
4. Environmental Pollution Control Engineering, Author: C S Rao, Wiley Eastern Ltd.,