

# THE COMPLETE COURSE ON CHEMICAL AND HAZARDOUS MATERIALS MANAGEMENT

**HSE100**

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## COURSE DESCRIPTION

The Chemical and Hazardous Material Management course is a comprehensive program that equips participants with the knowledge and skills necessary for the effective management of chemical substances and hazardous materials. Through a combination of theoretical learning and practical applications, participants will gain an in-depth understanding of key concepts such as chemical identification, safe handling practices, transportation and storage strategies, total quality management, chemical safety rules, emergency management, and nuclear hazards.

This course emphasizes the importance of accurately identifying hazardous chemicals using visual and formal methods, enabling participants to recognize and assess potential risks in various settings. Participants will learn best practices for the safe handling of toxic and hazardous substances, including the proper selection and use of personal protective equipment, implementation of ventilation and engineering control measures, and the provision of comprehensive training and information to personnel.

Transportation and storage strategies for waste and hazardous materials will be explored, focusing on minimizing risks to human health and the environment. Participants will learn about effective storage methods, safe disposal techniques for industrial and nuclear waste, and gain insights from Arab and international experiences in storing hazardous and radioactive materials. The course also covers media awareness and modern preventive requirements in dealing with hazardous and radioactive materials.

The concept of Total Quality Management (TQM) within chemical substances will be addressed, highlighting the steps necessary to achieve international quality standards in chemical laboratories. Participants will learn about quality control and management practices, ISO 9000 and ISO 9001 standards, and comprehensive quality assurance procedures.

Chemical safety rules and protocols will be thoroughly covered, enabling participants to identify hazardous chemicals, understand common health hazards, and implement measures to reduce risks. Emergency management and response plans will be developed, including the identification of potential incidents, formulation of response procedures, and conducting emergency training and drills. The course will also touch upon nuclear hazards, focusing on nuclear terrorism and the security and protection of radioactive materials.

## COURSE OBJECTIVES

By the end of this course, participant will be able to:

- Identify hazardous chemicals using visual informal and formal methods.
- Recognize hazardous materials in fixed places and transportation accidents.
- Understand container types in factories and the importance of proper identification.
- Report hazardous substances and understand hazardous material tagging systems.
- Inspect hazardous materials and implement preventive measures.
- Follow safe work procedures and best practices for handling toxic and hazardous substances.
- Select and use appropriate personal protective clothing and equipment.
- Provide training and information on chemical hazards.
- Maintain engineering control measures and monitor and record chemical hazards.
- Apply proper transportation and storage strategies for waste and hazardous materials.
- Ensure safe disposal of industrial and nuclear waste.
- Implement media awareness and preventive requirements for hazardous and radioactive materials.
- Establish total quality management practices within chemical laboratories.
- Follow ISO 9000 and ISO 9001 standards for quality control and management.
- Comply with chemical safety rules and identify common health hazards.
- Implement risk reduction strategies and technical procedures for control.
- Develop effective emergency management and response procedures.
- Create on-site and off-site contingency plans.
- Conduct emergency training, exercises, and drills.
- Investigate incidents and extract lessons for improvement.
- Understand the dangers of nuclear and radiological terrorism.
- Implement security and protection measures for radioactive materials.
- Ensure nuclear security in relevant contexts.

## WHO SHOULD ATTEND

- Technicians and managers in need of this type of knowledge to deal with chemicals and hazardous substances
- Personnel involved in the management and control of hazardous chemicals
- Executive safety and safety managers concerned with safety management
- Engineers who are required to know information about safety procedures
- Parties concerned with the handling and storage of toxic and dangerous substances
- Quality assurance and quality control officers within chemical laboratories.
- Quality management officials in chemical laboratories within different centers and institutions.
- Managers and workers in chemical laboratories.

## COURSE DURATION

4 Weeks

## COURSE OUTLINES

### 1. Chemical and Hazardous Material Identification

- Visual informal methods of identification of hazardous chemicals
- Formal methods for identifying hazardous chemicals
- Identification of hazardous chemicals in fixed places
- Identification of containers in factories and their types
- Identifying hazardous materials in transportation accidents
- Reporting of hazardous substances
- Identifying hazardous materials through transportation containers
- Recognition of hazardous material tagging systems
- Inspection of hazardous materials

### 2. Safe Handling of Toxic and Hazardous Substances

- Safe work procedures and best practices
- Personal protective clothing and equipment (selection and use)
- Provide training and information on chemical hazards
- Ventilation methods in stores
- Maintenance of engineering control measures
- Monitoring, measurement, and record-keeping methods

### 3. Transportation and Storage Strategies for Waste and Hazardous Materials

- Hazards involving the storage and preservation of these substances to human health and the environment
- Modern and correct methods used to store these materials to prevent their hazards.
- Safe methods for disposal of industrial and nuclear waste
- Arab and international experiences in storing hazardous and radioactive materials.
- Media awareness in dealing with these materials
- Modern preventive requirements in dealing with hazardous and radioactive materials

### 4. Total Quality Management in Chemical Substances.

- Concept of quality system within chemical laboratories.
- Steps to achieve international quality in chemical laboratories.
- Essentials for achieving total quality in chemical laboratories.

- Activities that must be targeted in working in chemical laboratories to achieve total quality.
- Quality control and management within chemical laboratories.
- ISO 9000 standards for quality at work in the chemical laboratory.
- ISO 9001 standards in how to achieve total quality.
- Comprehensive quality assurance procedures.

## 5. Chemical Safety Rules

- What is a hazardous chemical?
- Chemical Hazards.
- Common chemical groups that cause a health hazard.
- How work site chemicals can enter our bodies.
- How chemicals affect us:
- Acute effects and chronic effects.
- Topical effects – Systemic effects.
- Allergic reactions.
- Toxicity and ways of exposure
- How to reduce the risk of chemicals.
- Technical procedures for risk control.
- Safety Management Checklist.
- Workplace storage.
- Individual protective equipment.
- Substances that may cause work-induced pulmonary disease.

## 6. Emergency Management and Response Plans

- Identify potential emergency incidents of toxic and dangerous substances
- Develop emergency response procedures
- Develop on-site and off-site contingency plans
- Emergency training, exercises, and drills
- Medical First Aid, Health Surveillance and Medical Records
- Investigation of incidents and lessons learned

## 7. Nuclear Hazards

- The dangers of nuclear and radiological terrorism
- Combating nuclear terrorism: the security and protection of radioactive materials.
- Nuclear security
- Biological and Nuclear Hazards