

**GUIDELINES FOR TRAINING OF SUPERVISORS UNDER SECTION 41-C(b) OF THE FACTORIES ACT, 1948**

**1. COURSE TITLE: CERTIFICATE COURSE IN SAFETY AND HEALTH FOR SUPERVISORS**

**2. QUALIFICATION AND EXPERIENCE FOR ADMISSION**

- (a) (i) A degree with chemistry or a diploma in any branch of engineering or technology with not less than 5 years experience; or  
(ii) A master's degree in chemistry or a degree in any branch of engineering or technology with not less than 2 years experience
- (b) The experience stipulated above shall be in process operations and maintenance, in any industry wherein hazardous substances are involved.

**3. COURSE DURATION**

The duration of the course shall be as follows:

- (a) Full time (minimum 6 contact hours per day) – 4 weeks
- (b) Part time (minimum 3 contact hours per day) – 8 weeks

**4. COURSE CONTENT**

The content of the syllabus of the training course for supervisors working in any factory involving hazardous process shall be as per Annexure-I.

**5. ATTENDANCE**

Minimum 75% of attendance shall be required for appearing in the written examination. Those candidates not attaining the minimum percentage of attendance shall not be allowed to appear for the written examination and shall be required to repeat the course.

**6. SCHEME OF EXAMINATION**

- (a) Project work / laboratory work – 20 marks
- (b) Oral examination based on project / laboratory work – 10 marks
- (c) Written examination – 170 marks

The examinations shall be carried out by DGFASLI and the expenses towards TA/DA for the officials of DGFASLI for the conduct of the examination shall be borne by the Institute/organisation.

The written examination shall be of objective type and of one and half hours duration. All arrangements for conducting oral examination and written examination shall be made by the

institute concerned. The oral examination and written examination including the work relating to setting the question paper, giving answer keys, and evaluation of answer books of the candidates shall be done by the empanelled examiner only under the supervision of the examiner appointed by DGFASLI

## **7. STANDARD OF PASSING**

A candidate shall be declared to have passed the course if he secures minimum 45% marks in each of the items of scheme of evaluation (item 6(a), (b), (c)) and an aggregate of 50% or more.

A candidate failing to secure minimum prescribed marks in the written examination can be granted a grace of maximum five marks only.

## **8. AWARD OF CLASS / GRADE**

The candidates passing in the examination as per the scheme given at item no. 6 & 7 above, shall be awarded the Grade as below :

- (a) A+                    - 75% & above
- (b) A                     - 60% & above but below 75%
- (c) B+                   - 55% & above but below 60%
- (d) B                    - 50% & above but below 55%

## **9. RE-EXAMINATION**

The candidates for valid reasons after attaining minimum 75% attendance failing to appear written / oral examination or the failures in oral or written examination or failing to secure 50% marks shall be required to appear for re-examination within a period of one year from the date of declaration of results of previous examination or the date declared by the institute concerned whichever is earlier.

## **10. AWARD OF CERTIFICATE**

The certificate to the successful candidates shall be awarded by DGFASLI or the State Government as the case may be. The format of the certificate is appended herewith as Annexure – II. The certificate will also carry a photograph of the successful candidate, duly attested by the Head of the Institution or the Department or any other authority so declared competent for this purpose with the seal of the institution affixed on the certificate.

**SYLLABUS OF THE TRAINING COURSE FOR SUPERVISORS**

Minimum  
no. of sessions  
(each of 75 min.)

**1. Statutory Provisions -**

1.1 The Factories Act, 1948 and Rules	3
1.2 The Environment (Protection) Act, 1986 and Rules with special emphasis on MSIHC Rules & Handling of Hazardous Wastes Rules	2
1.3 The Indian Petroleum Act 1934 and Rules	1
1.4 The Indian Explosives Act, 1984 and Rules	1
1.5 The Static and Mobile Pressure Vessel Rules	1
1.6 Indian Boilers Act and Rules	1
1.7 The Insecticides Act and the Rules	1
1.8 Other applicable Acts and Rules	1

NOTE: Inputs to be imparted to the participants in the above Acts and Rules should be relevant to the factory processes and operations.

**2. Basic Principles of Accident Prevention –**

2.1 Basic philosophy of industrial accidents – causation and prevention, near miss reporting and learning lessons	1
2.2 Safety and Health Policy	1
2.3 Types of hazards – physical, chemical, electrical, mechanical, biochemical, radiological, etc.	1
2.4 Role of supervisor in promoting safety & health	1
2.5 Accident and root cause analysis	1
2.6 Principal factors for classification	1
2.7 Formulation of accident prevention programme	2
2.8 Case study	1

### **3. Techniques of Identification of Hazards and Risk Management –**

3.1 Plant Safety Inspection	2
3.2 Accident Investigation	2
3.3 Job Safety Analysis (JSA)	1
3.4 Fault tree Analysis (FTA)	
3.5 Failure Modes and Effect Analysis (FMEA)	
3.6 Hazards and Operability (HAZOP) Study	
3.7 Risk and Risk Management	

### **4. Control Techniques -**

4.1 Substitution, etc.	
4.2 Dilution	
4.3 Segregation	
4.4 Isolation	
4.5 Enclosure	4
4.6 Barricading	
4.7 Guarding	

### **5. Chemical Hazards and Specific Control Measures –**

5.1 Storage, handling and transportation of chemicals (safety in bulk storage, Handling of hazardous chemicals, chemical safety)	2
5.2 Permit to work – procedure and compliance	1
5.3 Safety in shut-down and start-up procedures	2
5.4 Colour coding of pipelines , cylinders & valves	1
5.5 Instrumentation for safe operating plant procedures (SOPs)	2
5.6 Personal Hygiene	1
5.7 Industrial Classification Labeling	1
5.8 Chemical Safety Data Sheets	1
5.9 House Keeping	1
5.10 Personal Protective Equipment	2
5.11 Concept of Reliability and calibration	1

### **6. Fire and Explosion Hazards –**

6.1 Chemistry of fire	1
6.2 Flash point, explosive limits	1
6.3 Portable and fixed fire fighting systems	2
6.4 Hazards area classification and safety aspects including flameproof electrical Equipment	2
6.5 DOW fire & explosion index	2
6.6 Reporting deviations for inspection, refilling, examination, etc, of fire fighting system	1

**7. Health hazards due to chemical exposure –**

7.1 Factors contributing to hazardous situation	1
7.2 Routes of entry	1
7.3 Concentration and types of exposure	2
7.4 Work environment monitoring – techniques & procedure	2
7.5 Toxic effects of chemicals	1
7.6 Health monitoring	1
7.7 First Aid	1

**8. Chemical Emergency Procedures –**

8.1 The onsite Emergency Plan		
8.1.1 Key persons and their responsibilities		
8.1.2 Alarms		2
8.1.3 Control room		
8.1.4 Evacuation		
8.1.5 Assembly points		
8.1.6 Rehearsals		
8.1.7 Rehabilitation of the affected area		
8.2 Off-site Emergency Plan	1	

**9. Counseling and motivating for safety & health –**

9.1 Techniques	1
	1

9.2 Strategies

**10. Others –**

10.1 Safety audit and OSHAS	1
10.2 Environmental Management System (EMS)	1
10.3 Communication skills for safety & health at work	2
10.4 Training cycle, training techniques, tool box talks	1

(The detail content of the syllabus shall be as given in Annexure-IV)

**CERTIFICATE**

This is to certify that Shri/Smt/Kum.....  
..... attended the “Certificate Course in Safety and Health for Supervisory Personnel Engaged in Hazardous Process Industries” as required under Section 41-C(b) of the Factories Act, 1948 and the Rules made thereunder, from ..... to ..... (full time/part time) at .....

On successful completion of the course with grade ....., he/she is herewith conferred with this certificate of competency to work as Supervisor in industries involving hazardous processes.

Photograph of  
the candidate  
duly attested by  
the Head of the  
Training Institute/  
Organization

Seal of the Training  
Institute/ Organisation

(Signature of  
Approving Authority with seal)

Date:

Grading: A+ - 75% and above, A - 60% to 74%, B+ - 55% to 59%, B – 50% to 54%