<u>Guidelines for one month certificate course for supervisors to be employed in</u> <u>Hazardous Process Industries under section 41C(b) of the Factories Act. 1948</u>

- 1. COURSE TITLE: Certificate Course in Safety and Health for Supervisors to be employed in Hazardous Process Industries.
- 2. Institutes allowed for conducting the course: All institutes under DGFASLI, i.e., CLI & RLIs are allowed to conduct the course.

3. QUALIFICATION AND EXPERIENCE FOR ADMISSION

(a) (i)A degree in chemistry (three years full time) or a Diploma in Chemical Engineering or Technology (three years full time) with 5 years relevant working experience in process operation or maintenance or safety in any hazardous process industry, registered under the Factories Act, 1948.

or

(ii) A Master's Degree in Chemistry (two years full time) or a Degree in Chemical Engineering or Technology (four years full time) with 2 years relevant working experience in process operation or maintenance or safety in any hazardous process industry, registered under the Factories Act, 1948.

(b) The experience stipulated above shall be in process operations and maintenance, in any hazardous process industry.

4. COURSE DURATION

The duration of the course shall be as follows:

Full time (minimum 6 contact hours per day) -4 weeks (Two weeks classroom teaching/ lab demonstrations followed by one-week project work and on completion of which a further one-week classroom teaching/ lab demonstrations – total 90 contact hours - 72 class room sessions, one classroom session of 75 mins.)

5. COURSE CONTENT

The syllabus is enclosed at Annexure-IV.

6. ATTENDANCE

Minimum 80% of attendance shall be required for appearing in the examination. This minimum requirement is mandatory even if a candidate is declared sick on medical grounds. Those candidates not attaining the minimum percentage of attendance shall not be allowed to appear for the viva, laboratory work, project work and written examination and shall be required to repeat the course.

The attendance (six contact hours per day) during the project work is to be included while calculating the total attendance during the course. The attendance during the project work should be duly certified by the sponsoring organisation or the organisation where the participant carries out the project work.

7. SCHEME OF EXAMINATION

(a) Project work
(b) Laboratory work (Safety, Hygiene and Industrial Medicine)
(c) Oral examination based on project/laboratory work
(d) Written examination
-10 Marks
-150 Marks

The project work may be carried out in the sponsoring organization or any organization of the participant's choice.

The examinations will be conducted by DGFASLI.

The written examination shall be of objective type consisting of 150 questions (multiple choice questions) and of two hours duration. The answers to the questions shall be marked in an OMR sheet. All arrangements for conducting written, project, laboratory and oral examinations shall be made by the institute concerned by adhering to the specified norms.

The examination works including setting the question paper and evaluation of answer books, project reports, laboratory work and oral examination of the candidates shall be done by the empanelled examiners of DGFASLI only.

8. STANDARD OF PASSING

A candidate shall be declared to have passed the course if he/she secures minimum 50% marks in each of the items of the examinations [item6 (a), (b), (c) & (d)] and an aggregate of 60% or more.

9. AWARD OF CLASS/ GRADE

The candidates passing in the examination as per the scheme given atitemno.6& 7above shall be awarded the Grade as below:

A +	80% and above
Α	70% and above but below 80%
B +	65% and above but below 70%
В	60% and above but below 65%

10. **RE-EXAMINATION**

If a candidate for some genuine reasons could not appear for the examination after securing 80 % of the attendance, he shall be permitted to appear when the next examination is conducted within a reasonable period of time. Further, if a candidate could not pass in any one or more components of the examination, he shall be allowed to re-appear for those components once only. However, if a candidate is having passed in all the components fails to secure minimum 60% marks in aggregate he shall be allowed to re-appear once in the written examination and/ or oral examination as per the candidate's choice.

11. AWARD OF CERTIFICATE

The certificate to the successful candidates shall be awarded by DGFASLI only. The format of the certificate shall be as enclosed at **Annexure-I**. The certificate will carry a photograph of the successful candidate, duly attested by DGFASLI and Head of the Institution or any other authority so declared competent for this purpose with the seal of the institution and DGFASLI affixed on the certificate.

12. COURSE FEE

The course fee to be charged by CLI &RLIs from the participants of this course shall be ₹ 15,000/- (Rupees Fifteen Thousand only).

13. QUALIFICATION AND EXPERIENCE FOR FACULTY

The minimum qualifications and experience of the faculty members to be engaged for the course shall be as under:

For the faculties of industrial safety discipline:

- (a) Bachelors degree in engineering / technology in chemical / mechanical / electrical with 05 years of relevant work experience.
 - or
- (b) Masters degree in engineering / technology in relevant branch of the Bachelors degree in chemical / mechanical / electrical engineering with 02 years of relevant work experience.

For industrial hygiene discipline:

(a) Master of Science in Chemistry (any branch) with 05 years of relevant work experience.

For industrial health discipline:

(a) MBBS with Three Months Certificate Course in Occupational Health conducted by DGFASLI or any institution recognized by DGFASLI in this behalf with 02 years of relevant work experience.

ANNEXURE-I

CERTIFICATE

This is to certify that Shri/Smt/Kum...... attended the "Certificate Course in Safety and Health for Supervisory Personnel Engaged in Hazardous Process Industry" as required under Section 41C(b) of The Factories Act, 1948, from.....to 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

> (Signature of Institute/ Organisation/ Approving Authority with seal) (Overflowing the photograph)

Date:

Seal of the Training Institute

Grading: A+ - 80% and above; A - 70% and above but below 80%; B+ - 65% and above but below 70%; B - 60% and above but below 65%.

Detailed contents of the syllabus

1. Statutory provisions

S.No.	Units	No. of classroom
		sessions
1.1	The Factories Act & Model Factories Rules	5
1.2	The Environment (Protection) Act 1986 with special emphasis on	4
	MSIHC Rules & Handling of Hazardous Wastes Rules	
1.3	The Indian Petroleum Act 1934 & Rules	1
1.4	The Indian Explosive Act 1984 & Rules	1
1.5	The Static & Mobile Pressure Vessel Rules	1
1.6	The Indian Boiler Act & Rules	1
1.7	Gas Cylinder Rules	1
Total		14

2. Basic Principles of Accident Prevention

S.No.	Units	No. of classroom
		sessions
2.1	Basic Philosophy of Industrial Accidents	1
2.2	Safety & Health Policy	1
2.3	Types of Hazards	1
2.4	Role of Supervisor in promoting Safety & Health	2
2.5	Accident and Root Cause Analysis	2
2.6	Principal Factors for Classification	1
2.7	Accident Prevention Programme	1
2.8	Case Study	3
Total		12

3. Techniques of Identification of Hazards and Risk Management

S.No.	Units	No. of classroom sessions
3.1	Safety Inspection	1
3.2	Accident Investigation	1
3.3	Job Safety Analysis (JSA)	1
3.4	Hazard & Operability (HAZOP) Study	2
3.5	Hazard Identification and Risk Assessment	2
Total		7

4. Prevention and Control Techniques

S.No.	Units	No. of classroom sessions
4.1	Hierarchy of Controls	1
4.2	Industrial Illumination	1
4.3	Industrial Noise & Vibration	1
4.4	Industrial Ventilation	1
Total		4

5. Chemical Hazards & Control Measures

S.No.	Units	No. of classroom sessions
5.1	Storing, Handling & Transportation of Chemicals	3
5.2	Permit to Work – Procedure & Compliance	1
5.3	Colour Coding of Pipelines, Cylinders & Valves	1
5.4	Labelling & Hazard Communication (HAZCOM)	2
5.5	Safety Data Sheets / MSDS	1
5.6	Personal Protective Equipment	1
Total		9

6. Health Hazards due to Chemical Exposure

S.No.	Units	No. of classroom sessions
6.1	Exposure to chemicals and its impact	3
6.2	Concentration and Types of Exposure	2
6.3	Work Environment Monitoring – Techniques & Procedures	2
6.4	Toxic Effects of Chemicals	1
6.5	Toxicology	2
Total		10

7. Occupational Health in Chemical Plants:

S.No.	Units	No. of classroom sessions
7.1	Health Monitoring	3
7.2	First Aid	1
Total		4

8. Fire & Explosion Hazards

S.No.	Units	No. of classroom sessions
8.1	Fire and Explosion	3
8.2	Hazardous Area Classification	1
8.3	Fire Fighting Systems	1
8.4	Electrical Safety	3
Total		8

9. Safety Advocacy

S.No.	Units	No. of classroom sessions
9.1	Techniques & Strategies of Safety Advocacy	1
9.2	Risk Behaviours & Discretionary Performance	1
9.3	Motivational Models	1
9.4	Human Error	1
Total:		4

The demonstrations on lab experiments shall be as under:

(a) Industrial Hygiene:

1. Demonstration on assessment of Chemical agent - (Inorganic /Organic contaminant, any one out of - Ammonia, Carbon monoxide, Chlorine, Hydrogen sulfide, Sulfur Dioxide, Benzene, Acetone)

2. Demonstration on assessment of Chemical agent- Particulate Matter (Any one out of -Total Dust, Respirable Dust, Fume, fiber)

3. Demonstration on assessment of Physical agent -(Any One out of - workplace Heat, Noise, Illumination)

(b) Industrial Medicine:

- i. Pulmonary function Test.
- ii. Audiometry Test.
- iii. Titmus Vision Test.

Annexure-III

Basic Laboratory facilities/equipment – Lab equipment to be maintained as per the lab experiments.

<u>Annexure – IV</u>

Study& Evaluation Scheme for Certificate Course in Safety & Health for Supervisory Personnel Working in Hazardous Process – The study scheme shall be devised by the institutes as per the requirement of the syllabus. The evaluation scheme shall be:

- a) Project work-20 Marks
- b) Laboratory work (Safety, Hygiene and Industrial Medicine)-20 Marks
- c) Oral examination based on project/laboratory work-10 Marks
- d) Written examination-150 Marks
