

Basic Course on
“CHEMICAL LABORATORY SAFETY PRACTICES”
on 15 -16 July 2022, Virtually

Dear Sir / Madam,

We are happy to inform you that under the auspices of the R&D Subcommittee under Technology & Energy Expert Committee, ICC is organizing Basic Course on **“CHEMICAL LABORATORY SAFETY PRACTICES”** on **Friday, 15 July and Saturday, 16 July 2022** from **01.30 p.m. to 05.30 p.m. (on both days)**. This virtual program will be coordinated from Mumbai Office of ICC.

COURSE DESCRIPTION:

Awareness of safe laboratory practices is crucial for all personnel working in modern chemical laboratories. The goal of this course is to sensitize early chemical industry professionals including new entrants and students of Chemistry / Chemical Engineering, on various aspects of laboratory safety practices. We plan to use a combination of theoretical fundamentals and practical insights to educate the participants of this program. Using common laboratory equipment and operations as a basis, the curriculum will focus on best practices for safe lab operations and also use historical case studies to highlight typical accident scenarios. Effective use of Safety Data Sheets and incident response procedures will also be covered from a viewpoint of minimizing incident impact and casualties.

The course has been designed by Experts from Clariant India Ltd., NOCIL Ltd., IIT Bombay, Godavari Biorefineries Ltd., BASF Chemicals India Pvt Ltd., Aarti Industries Ltd., InnovaSmart LLP. The course instructors are carefully chosen with a mix of academic and industrial backgrounds and have significant real-world experience in these settings. The goal is to upgrade skillsets with respect to Safety of personnel from industrial R&D labs, pilot plants and chemical testing laboratories. The target audience will be students and young professionals with a degree in a chemistry / chemical engineering or a related discipline. On successful completion of the course, participants will be awarded with the **“Certificate”** from ICC.

COURSE STRUCTURE:

Modules
Module 1: Introduction to Safe Laboratory operations
Module 2: Refresher on Fundamental calculations relevant to lab safety
Module 3: Utilizing Safety Data Sheets (SDS) for safe chemical handling
Module 4: Safe handling of typical laboratory equipment
Module 5: Incident Response & Emergency planning
Module 6: Safe handling of industrial gases
Module 7: Case Studies based on historical Lab Accident Reports
End of Course Assessment Exam

The **detailed course curriculum** is **attached** herewith for your kind reference.

WHO SHOULD ATTEND:

Students, recent graduates and early-career industry professionals with a degree in Chemistry, Chemical Engineering or an allied discipline and those personnel having qualification other than Chemistry / Chemical engineering but are engaged in Chemical Laboratory will benefit from this course

CERTIFICATION:

At the end of course, an exam (30 min – MCQs) will be conducted and on successful completion of the test, **Certificate of Recognition** shall be provided to the participants. These course completion certificates will be sent to the participant via e-mail separately.

REGISTRATION FEES

- **For Students** : Rs. 2360/- per delegate (Rs. 2,000/- plus 18% GST)
- **For Members of ICC** : Rs. 5900/- per delegate (Rs. 5,000/- plus 18% GST)
- **For Non- members of ICC** : Rs. 7080/- per delegate (Rs. 6000/- plus 18% GST)

Course enrollment will be for a limited number of participants.

Participants will be registered on First-Cum-First-Serve basis.

There is also an Early bird discount of 10% for registrations before 1 June 2022.

Kindly send details of delegates as given below:

Name of the Participant/s & Designation	Email id	Mobile No. / Tel No.
Name of the Organisation / Institution		
Address		
GST No. of the Company		

(Please note that on receipt of payment, Link for joining the Certification Course will be sent to delegate/s)

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Kindly remit Registration Fee for Course ONLINE to our Bank Account, for which details are given below:

BANK DETAILS:

Bank of Baroda, Horniman Circle Branch, Mumbai
C/A No. 27940200000736, Branch Code: 2794,
IFSC / NEFT Code: BARB0PBBMUM, (Plz note fifth alphabet is 'ZERO' not 'O')
MICR Code: 400012111 Swift Code: BARB IN BB BMO)

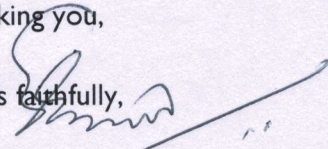
GST No.: 27AAACI0359PIZ9

NOTE: Please mention your GST number clearly while sending nominations.

We request not miss this opportunity and take advantage of this Certification Course by Participating / Deputing Personnel / Students from your Organization / Institution. Please send registration to ICC-Mumbai via e-mail (iccmumbai@iccmil.in / events@iccmil.in) on or before **Friday, 1 July 2022.**

Thanking you,

Yours faithfully,



D SOTHI SELVAM
Director General

Encl: as above

**Basic Course on
“CHEMICAL LABORATORY SAFETY PRACTICES”
on 15 -16 July 2022 virtually**

DETAILED COURSE CURRICULUM

MODULE 1: Introduction to Safe Laboratory Operations.

Typical lab operations e.g. reactions, distillations, solvent recovery, crystallization, extraction etc. Introduction to Typical equipment in chemical labs and their purpose (safety of individual equipment will be dealt in detail in Module 4) e.g. Rotovaps, Vacuum pumps, compressors, hot oil baths, autoclaves, cylinder handling. Expose to general arrangement drawings for equipment, lab layouts, emergency exits etc. Introduction to Good Lab practices (GLP).

MODULE 2: Refresher on Fundamental Calculations Relevant to Lab Safety.

Stoichiometry and balancing reactions, Vapor Pressure, Gas Laws , Vapor Liquid Equilibria (VLE), Liquid Liquid Equilibria (LLE), pH and titrations, Basic Thermodynamics, Heats of formation and evaluating Exotherm / Endotherm for reactions.

MODULE 3: Utilizing Safety Data Sheets (SDS) for Safe Chemical Handling

Elements of an SDS. Use an actual SDS as an example. Basics of toxicology, oral, dermal, inhalation hazards. LD₅₀ values. Selecting the right PPE (respirators, face shields etc.). Reading a NFPA Safety diamond. Safe disposal of chemicals. Dealing with spills and leaks. Storage of chemicals according to chemical compatibility, low flash point chemicals, flammable solvents, etc

MODULE 4: Safe Handling of Typical Laboratory Equipment

Autoclaves, Ovens, Heating Baths, Glassware and tubing hazards, Incinerators, Muffle Furnaces, Refrigeration systems, Cold traps, Rotovaps, Vacuum Pumps, Vacuum Dewars, fume hoods. Discussion of some historical accidents involving specific equipment. SOPs and Do & Don'ts. Good Lab practices (GLP)

MODULE 5: Incident Response & Emergency Planning

Eye Wash Fountains, Safety Showers, Assembly Points, Sprinkler activation, inert gas protected spaces. Accident investigation procedures. CPR and First Aid. Access, exits signs and guideways. Emergency power and lighting. Self-contained breathing apparatus (SCBA) and its use. Defibrillators.

MODULE 6: Safe Handling of Industrial Gases

Nitrogen, Oxygen, Hydrogen. Compressed Air. Syngas. Fittings and cylinder marking. Safe storage of gases. Venting requirements. Detectors and alarms.

MODULE 7: Case Studies based on Historical Lab Accident Reports

Discussion of three to four case studies based on historical accident reports.

SELF-ASSESSMENT TEST

At the end of course, an exam (30 min – MCQs) will be conducted and on successful completion of the test, **Certificate of Recognition shall be provided to the participants**