

Designing and Remodeling for Safer Chemical Laboratories

1. Principle

In order to have an efficient and low-risk workplace, a chemical laboratory is to comprise of a variety of mechanical equipment and instruments, such as fume cupboards, air handling units, humidity and temperature control devices, including high-end equipment for research and quality control depending on individual laboratory setting. The designs of these equipment and instruments are very complicated and critical in all aspects, from their design, manufacturing, installation including their locations within a laboratory and also their maintenance. Therefore, proper laboratory design is primarily necessary for the health and safety of laboratory personnel as well as their comforts and efficiency. Moreover, good laboratory design should also concern on energy saving, environmental friendly and effective usage of that laboratory.

2. Objective

- 2.1 To enhance knowledge and understanding on designing for new construction and renovation of chemical laboratories aimed to minimize risk from exposure to hazardous chemicals and to increase safety for laboratory personnel, including the concern in our neighboring and environment.
- 2.2 To raise awareness in the relationship of laboratory design to the safety of a chemical laboratory.

3. Target Customer Group

Scientists, laboratory managers, laboratory personnel or others involved working in laboratories from public and private sectors.

Notes:

1. Holder at least a bachelor's degree or at least a 3-year experience working in chemical laboratories.
2. Should have basic knowledge about laboratory safety.

4. The lecturers

Professional of Department of Science Service and professionals from other agencies.

5. Course Topic

- Essential Issues of Laboratory Design for Safety and Energy Saving 1.0 hr.
 - Definition of a Good Laboratory
 - 4 important things to obtain a Safe and Energy Saving Chemical Laboratory
 - Optimization of what we have

- Design Guidelines for Chemical Laboratories 2.0 hr.
 - Laboratory Hazards and Risk Reduction
 - Things to Consider when Designing a Chemical Laboratory
- Preliminary Hazard Analysis 1.5 hr.
- Strategies for Laboratory Remodeling to Improve Safety 1.5 hr.
 - Laboratory Arrangement
 - Laboratory Management
- Design Standards for Chemical Laboratories 1.5 hr.
 - The Importance of Standards
 - Standard Selection
 - Standards Regarding Chemical Laboratories
- Green Chemical Laboratories 1.5 hr.
 - “Green” Does Not Mean Only Energy Saving but also Environmental Sentimentals
 - Design and Selection of Materials and Equipment for Green Laboratories
 - Practices for Energy Saving in Chemical Laboratories
- Workshops: Assessment of Hazardous Conditions within Laboratories 3.0 hr.
 - Including Their Remedial Actions

6. The training method

Describe 9.0 hr.

Practice 3.0 hr.

7. Duration of the training course

2 days

8. Training facility

Institute of Analytical Chemistry Training Building

Bureau of Laboratory Personnel Development

Department of Science Service

Ministry of Science and Technology

Rama 6 Road, Ratchathewi, Bangkok 10400 THAILAND

Tel. 02 201 7435, 02 201 7449 Fax. 02 201 7461

9. Budgets

Fee 5,000.-Baht/person

10. Certification

Participants need to attend more than 75 % of class session to be eligible for the certificate of completion.