Laboratory safety is an essential element to promote positive working environment in the laboratories. In the Chemistry Curriculum, students spend as much as 40% of their time in the laboratory. However, there is not a single course on laboratory safety. In the past, some fatal accidents occurred in laboratories such as burning or inhalation of very toxic gases.

e-Learning has been proven to be effective for enhancing the teaching effectiveness and engaging students to become more active in learning various types of courses. In this project, we have developed several micro-modules, covering the topics from chemical accidents, fume hood, chemical incompatibility to emergency handling. More interestingly, we have produced a virtual laboratory tour video using virtual reality technology.

Virtual Laboratory Tour

It is a virtual reality tour to the Inorganic Chemistry Laboratory at the Chemistry Department, CUHK. Students could take a glimpse on how a laboratory looks like. It serves as an introduction to students before entering a laboratory. To acquire the relevant information, they should go through all the other micro-modules.

Chemical Accidents

This micro-module focuses on serious or fatal laboratory accidents in the past. Four newspaper articles, each with voice-over on the background and reflections at the end, aim at drawing students' attention on laboratory safety.

Fume Hood

Fume hood is an enclosure inside which has a slightly negative pressure to avoid air from flowing out. Whenever students handle corrosive, flammable or volatile chemicals, they are requested to handle them inside the fume hood. The correct use of fume hood ensures safety. This micro-module talks about the basic architecture and precautions of fume hood. It also talks about scrubber system which is used to purify gas before disposing to the atmosphere.

Chemical Incompatibility

Rules apply in storing chemicals, which otherwise, could lead to explosion. This micro-module covers some rules and principles of storing chemicals.

Emergency Handling

Chemical spillage or accidents could happen in the laboratory. In case of happening, how should students react or respond? In this micro-module, students learn about emergency measurements in the laboratory such as eye wash station, fire extinguisher, fire sand, fire blanket, shower station, spill kit and first aid box.