

I. Course Overview:

Upon successful completion of this course, the students should be able to use safely the appropriate laboratory equipment and techniques to synthesize, handle, characterize and evaluate the purity of organic compounds and keep an accurate record of procedures, results and conclusions.

II. Units:

Unit 1. Laboratory and Safety Rules

General Outcome:

- 1.0 The students should be able to (1) conduct a chemistry experiment using proper safety procedures, (2) recognize and deal with potentially hazardous situations, and (3) demonstrate an understanding for the necessity of safe laboratory procedures.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 1.1 Practice the safety rules as provided by the instructor.
- 1.2 Explain why these safety rules are important.
- 1.3 Conduct experiments in accordance with these safety rules.
- 1.4 Locate and describe the use of safety equipment such as fire extinguishers, fire blanket(s), eye wash, safety shower, first aid kit, clean-up spill kits, utility shut-offs, etc.

Unit 2. Laboratory Skills

General Outcome:

- 2.0 The students should be able to demonstrate laboratory skills in the performance of experiments related to topics in CHM 2210.

Specific Learning Outcomes:

Upon successful completion of this unit, the students should be able to:

- 2.1 Identify common laboratory glassware, select the appropriate glassware, and use it to perform a given laboratory task.
- 2.2 Select, dispense, handle, dilute and dispose of laboratory chemicals safely and properly.
- 2.3 Operate specific pieces of equipment such as balances, bunsen burners, melting point apparatus, heating mantles, refractometers, polarimeters, infrared spectrophotometers, chromatographic apparatus, etc.
- 2.4 Properly assemble laboratory apparatus as required for an experiment.
- 2.5 Perform certain laboratory tasks including melting points, distillations, recrystallizations, refluxing, separations, syntheses, etc.
- 2.6 Perform chemical and physical tests to identify an unknown compound.
- 2.7 Maintain an accurate record of procedures, observations, results, and conclusions.