Instrumental Analysis

Syllabus Number 5D258 Special Subjects 2 credit Êlective

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1. Course Description

In this course, principles and applications of solvent fractionation, chromatography, and instrumental analyses will be studied. Key words in this lecture are organic solvents, solvent fractionation, column chromatography, thin layer chromatography, gas chromatography, high performance liquid chromatography, ultraviolet-visible spectroscopy, infrared spectroscopy, 1H- and 13C-NMR spectroscopy, and mass spectrometry. Skills obtained by this class are related to DP2 and DP3.

2. Course Objectives

The aim of this course is to deal with methods of extracting, purifying, and identifying naturally occurring substances such as biologically active substances and food ingredients.

3. Grading Policy Quiz every time and report: 40% Finals: 60%

4. Textbook and Reference Textbook Handouts are used.

5. Requirements(Assignments) N/A

6. Note

7. Schedule

- [2] Learn about partition and adsorption chromatographies.
- [3] Learn about ion exchange, gel filtration, electrophoresis, and distillation.
- [4] Learn about high performance liquid chromatography (HPLC).
- [5] Learn about ultraviolet spectrum.
- [6] Learn about optical rotation and infrared spectrum.
- [7] Learn about basic nuclear magnetic resonance (NMR).

- [8] Learn about 1H-NMR.
- [9] Learn about 13C-NMR.
- [10] Learn about 2D-NMR and application of NMR.
- [11] Learn about analysis of NMR spectrum.
- [12] Learn about ionization methods in mass spectrometry (MS).
- [13] Learn about ion separation methods in MS, LC/MS, GC/MS, and analysis of mass spectrum.
- [14] Visit a laboratory to study real instruments of HPLC and MS as practice.
- [15] Finals and explanation.