

MODULE HANDBOOK

Module Name	Practicum of Analytical Instrument
Module level	Bachelor
Abbreviation, if applicable	8420401245
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	6rd / fiveth year
Module coordinator(s)	Dr. Pirim Setiarso, M.Si
Lecturer(s)	Prof. Dr. Titik Taufikurohmah, M.Si., Prof. Dr. Nita Kusumawati, M.Sc., Dr. Pirim Setiarso, M.Si., Dr Maria Monica SBW, M.Si
Language	Bahasa Indonesia
Classification within the curriculum	optional
Teaching format/class hours per week during the semester:	1 hours lectures (50 min / hour)
Workload:	1 CU for bachelor degree equals to 3 workhours per week or 170 minutes (50' face to face learning, 60' structured learning, and 60' independent learning). In one semester, courses are conducted in 14 weeks (excluding mid and end-term exam). Thus, 1 CU equals to 39.67 workhours per semester. One CU equals to 1.59 ECTS.
Credit points:	1 CU = 1 x 1,59 = 1,59 ECTS
Prerequisites course(s):	Electrochemistry Analysis and Spectroscopy and Chromatography Method
Targeted learning outcomes:	<p>CLO 1. Students have knowledge of chemical analysis qualitatively and quantitatively in terms of chemical structure, energetics and analysis based on the working principles of several Spectrophotometer, Chromatography and electrochemical instruments.</p> <p>CLO 2. Skilled students use tools in conducting chemical analysis qualitatively and quantitatively on several chromatographic and electrochemical spectrophotometers.</p> <p>CLO 3. Students have the ability to collaborate and are responsible for conducting qualitative and quantitative chemical analysis on several chromatographic and electrochemical spectrophotometers.</p> <p>CLO 4. Students have the ability to communicate the results of chemical analysis qualitatively and quantitatively on several chromatographic and electrochemical spectrophotometers.</p>

Content:	Spectrophotometer (IR, AAS, UV-Vis), Chromatography (HPLC), and electrochemical (Potentiometric, Voltammetry) instruments
Study / exam achievements:	<p>Students are considered to be competent and pass if at least get 55</p> <p>Final score is calculated as follows: 20% participation + 30% assignment + 20% middle exam (UTS) & 30% final exam (UAS)</p> <p>Table index of graduation</p> <ul style="list-style-type: none"> • A = 4 (85 ≤ - < 100) • A- = 3,75 (80 ≤ - < 85) • B+ = 3,5 (75 ≤ - < 80) • B = 3 (70 ≤ - < 75) • B- = 2,75 (65 ≤ - < 75) • C+ = 2,5 (60 ≤ - < 65) • C = 2 (55 ≤ - < 60) • D = 1 (40 ≤ - < 55) • E = 0 (0 ≤ - < 40)
Media:	Computer, LCD, White board, laboratory
Learning Methods	Individuals assignment, group assignment, discussion, presentation, and practicum
Literature:	<p>Bagotsky, V.S, 2006, <i>Fundamentals of Electrochemistry</i>, New Jersey: John Wiley & Sons</p> <p>Ewing G.W, 1981, <i>Instrumental Methods Of Chemical Analysis</i>, International Student Edition, Tokyo: McGraw-Hill Kogakusha Ltd</p> <p>Harvey,D. 2000. <i>Modern Analytical Chemistry</i>. Int. Ed. Singapore: Mc.Graw Hill</p> <p>Sawyer, Heineman, and Beebe,1984, <i>Chemistry Experiments for Instrumental Methods</i>, New York : John Wiley & Sons</p> <p>Skoog, D.A,1980, <i>Principles Of Instrumental Analysis</i>,ed II, Tokyo: Holt- Sounders Japan</p>
Note	Practicum of Analytical Instrument covers the activities of practicum, make a practicum report and presentation.