

Module Handbook

Modul Name	Spectrometry and Electrometry (Practical)
Module Level	Bachelor
Abbreviation, if applicable	KIA301
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	6th / third year
Modul coordinator(s)	Dr. Muji Harsini, M.Si. (C1), Dr. Miratul Khasanah (C2)
Lecturer(s)	Dr. rer. nat. Ganden Supriyanto, M.Sc.(C1), Dra. Usreg Sri Handajani, M.Si., (C1) Yanuardi Raharjo, S.Si., (C1); M.Sc., Dra. Aning Purwaningsih, M.Si., (C2) Alfa Akustia Widati, S.Si.. (C2) M.Si., Harsasi Setiawati, S.S., M.Si.,(C2)
Language	Bahasa Indonesia
Classification within the curriculum	Compulsory course
Teaching format/class hours per week during the semester	2 hours laboratory work (50 min/hour)
Workload	2 hours doing worksheet and pretest preparation, 2 hours laboratory work, 2 hours group discussion, searching literature and writing report, 13 week per semester, and total 78 hours per semester ~ 2.6 ECTS *
Credit point	1
Requirement	Have pass the Spectrometry and Electrometry course
Learning Outcomes	<p>General competence (skill) : After following these subjects students are expected to operate some of the chemical instrumentation for analysis Spectrometry and Electrometry</p> <p>Spesific Competence :</p> <ol style="list-style-type: none"> 1. Students are able to practice the operation of the instrumentation for chemical analysis spectrometry and electrometry correctly 2. Students are able to use the technique spectrometry analysis and electrometry correctly 3. Students are able to perform determination of cations in the sample in spectrometry 4. Students are able to analyze substances in potentiometric titration 5. Students are able to carry out the analysis of the levels of ions with ion selective electrode 6. Students are able to carry out the analysis of metal ions by AAS 7. Students are able to carry out the analysis of metal ions in conductometry 8. Students are able to carry out the analysis of metal ions in voltammety
Content	Spectrometry which includes ultraviolet and visible spectrometry (UV-Vis), Atomic Absorption Spectrometry (AAS),

	turbidimetry, Elektrometri which include voltammetry, potentiometric and conductometry
Atribut softskill	Discipline, effort, good communication
Study/exam achievements	<p>Students are considered to be competent and pass if at least get 55</p> <p>Pretest all material: 30% Daily Practicum: 40% Written exam: 30%</p> <p>Value of Completion: A 75.00-100 70,00-74.99 AB 65.00-69.99 B 60.00-64.99 BC 55.00-59.99 C 40.00-54.99 D 0.00-39.99 E</p>
Forms of media	Chemical analysis instruments: UV-Vis Spectrophotometer, atomic absorption spectrometer, turbidimeter, voltammeter (potentiostat), ion meter, konduktometer, and glassware
Learning Methods	Lectures, discussion, assignment
Literatur	<ol style="list-style-type: none"> 1. Skoog, D. A., 1992, <i>Principles in Instrumental Analysis</i>, 3rd ed., Saunders College Publishing, Fort Worth 2. Willard, H. H., et al., 1988, <i>Instrumental Methods of Analysis</i>, 7th ed., Wadsworth, Belmont. 3. Hassivell, S. J., 1991, <i>Atomic Absorption Spectrometry</i>, Elsevier Science, Amsterdam.
Note	<p>*Total ECTS = {(total hours workload x 50 min) / 60 min } / 25 hours</p> <p>Each ECTS is equals with 25 hours</p>