



UNIVERSITAS NEGERI YOGYAKARTA
 FACULTY OF MATHEMATICS AND NATURAL SCIENCES
 DEPARTMENT OF CHEMISTRY EDUCATION
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Bachelor of Education in Chemistry

MODULE HANDBOOK

Module name:	CHEMICAL SEPARATION METHOD
Module level, if applicable:	Undergraduate
Code:	KIM 6412
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	3
Module coordinator:	Sunarto, M.Si.
Lecturer(s):	Dra. Regina Tutik Patmaningrum, M.Si.; Annisa Fillaelli, S.Si.,M.Si. ; Prof. DR. Suyanta, M.Si.; Dra. Susila Kristianingrum, M.Si.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Subject
Teaching format / class hours per week during the semester:	<ul style="list-style-type: none"> • Lectures: 150 minutes lectures, 180 minutes structured activities and 180 minutes individual study per week • Laboratory Work: 170 minutes includes the laboratory work and it's report per week.
Workload:	Total workload of the activity is hours per semester which consist of 150 minutes lectures, 180 minutes structured activities and 180 minutes individual study per week, and 170 minutes include laboratory work and it's report.
Credit points:	3SKS (5 ECTS) lectures, and 1SKS (1,64 ECTS) laboratory Work
Prerequisites course(s):	<ul style="list-style-type: none"> - Basic Chemistry - Basics of Chemical Analysis
Course outcomes:	<p>After taking this course, the students are expected to be able to:</p> <p>CO1. describe the analyte separation technique and its benefits and some principles of analyte separation techniques.</p> <p>CO2. applying electrochemical separation and analysis methods, separation with membranes, and solving various separation and analysis problems that can be done electrochemically and separation with membranes</p> <p>CO3. collaborate effectively in conducting electrochemical and membrane analysis</p> <p>CO4. discuss how variability affects the collected data and how it is used for making educational research decisions</p>
Content:	This course deals with various principles of analytic separation, several factors that influence, electrochemical separation and analysis methods and separation with membranes.
Study / exam achievements:	Attitude assessment is carried out at each meeting by observation and/or self-assessment techniques using the assumption that basically every student has a good attitude. The student is marked very good or not good attitude if they show it

	<p>significantly compared to other students in general. The result of attitude assessment is not taken into account in the final grades, but as one of the requirements to pass the course. Students will pass from this course if at least have a good attitude. The final mark will be weight as follow:</p> <table border="1"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assessment Object</th> <th>Assessment Technique</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>CO1, CO2, CO3, CO4.</td> <td>Participation Assignment Mid-term Exam Final Exam Lab Work</td> <td>Presentation / written test</td> <td>5% 20% 20% 25% 30%</td> </tr> <tr> <td colspan="4">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assessment Object	Assessment Technique	Weight	1	CO1, CO2, CO3, CO4.	Participation Assignment Mid-term Exam Final Exam Lab Work	Presentation / written test	5% 20% 20% 25% 30%	Total				100%
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1	CO1, CO2, CO3, CO4.	Participation Assignment Mid-term Exam Final Exam Lab Work	Presentation / written test	5% 20% 20% 25% 30%												
Total				100%												
Forms of media:	Board, LCD Projector, Laptop/Computer, Tools and Chemicals for Labwork															
References:	<p>Siti Sulastri dan Susila Kristianingrum, 2001, Metode Pemisahan dan Analisis Kimia, FMIPA, UNY</p> <p>Skog and West, 1996, Fundamental of Analytical Chemistry, Sounder College Publishing, New York</p> <p>Khopkar, S. M., 1990, Konsep Dasar Kimia Analitik, UI Press, Jakarta</p> <p>Yoseph Wang, 1984, Stripping Analysis, John Wiley and sons, New York</p> <p>Ritchey GM and Ash Brook, 1984, Solvent Extraction, John Wiley and sons, New York</p> <p>David Harvey, 2000, Modern Analytical Chemistry, Mc Graw Hill, New York</p> <p>Suyanta dan Buchari, 2000, Seri Analisis Elektrokimia</p> <p>Yoseph Wang, 2000, Analytical Electrochemistry, John Wiley and sons, New York</p> <p>Allen J Bard and R Faulkner, 1980, Electrochemical Methods, John Wiley and sons, New York</p> <p>Nellu Grinberg and Peter W Carr, 2019. Advanced in Chromatography. CRC Press.</p> <p>Berbagai monograf dan jurnal metode pemisahan dan analisis kimia</p>															

PLO and CO mapping

	PLO					
	Attitude		Knowledge	Specific Skill	General Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6
CO1			√			
CO2				√		
CO3					√	
CO4						√