UNIVERSITAS NEGERI YOGYAKARTA
FACULTY OF MATHEMATICS AND NATURAL SCIENCES
DEPARTMENT OF CHEMISTRY
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Module name:	Separation and Analysis of Chemical Compounds Method
Module level, if applicable:	Undergraduate
Code:	KMA6213
Sub-heading, if applicable:	-
Classes, if applicable:	2
Semester:	6th
Module coordinator:	Susila Kristianingrum, M.Si.
Lecturer(s):	1. Siti Marwati, M.Si. 2. Susila Kristianingrum, M.Si.
Language:	Bahasa Indonesia and English
Classification within the curriculum:	Compulsory Course
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week
Workload:	Total workload of the activity is 90,67 hours per semester which consists of 100 minutes lectures, 120 structured activities and 120 individual study per week for 16 weeks
Credit points:	2 SKS (3 ECTS)
Prerequisites course(s):	General Chemistry and Basics Analytical Chemistry
Course Outcomes	After taking this course, the students haHaving attitude ability to: CO1. Able to communicate the oral or written ideas through group or individual discussion in the observation and separation and chemical analysis case study CO2. Able to operate ICT effectively to promote analit separation technique material and to renew online references that collected CO3. Demonstrate an understanding of the basic concepts of electochemical methods of separation and chemical analysis CO4. Demonstrate understanding of the basic concepts of chemical separation and analysis methods with membranes CO5. Integrate mathematical and scientific concepts to solve problems in electrochemical separation and analysis methods CO6. Integrating mathematical and scientific concepts to solve problems in the method of separation and analysis with membranes CO7. Apply various methods of electrochemical and membrane separation and chemical analysis on a laboratory scale

<table>
<tr><td></td><td>C8. Apply various methods of electrochemical and membrane separation and chemical analysis in cases encountered in everyday life through literature and field observations</td></tr>
<tr><td>Content:</td><td>This lecture examines various principles of analytic separation, several factors that influence, electrochemical separation and analysis methods and separation with membranes</td></tr>
<tr><td>Study / exam achievements:</td><td>The final mark will be weight as follow:
<table>
<tr><th>No</th><th>CO</th><th>Assessment Object</th><th>Assessment Technique</th><th>Weight</th></tr>
<tr><td rowspan="4">1</td><td rowspan="4">CO1, CO2, CO4, CO4, CO5, CO6, CO7, CO8</td><td>Presentation ability</td><td>Assignment</td><td>10%</td></tr>
<tr><td>Individual assignment</td><td>Assignment</td><td>20%</td></tr>
<tr><td>Group assignment</td><td>Assignment</td><td>10%</td></tr>
<tr><td>Mid term exam, final exam, observation report</td><td>Assignment Written test</td><td>50%</td></tr>
<tr><td colspan="4">Total</td><td>100%</td></tr>
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<tr><td>Forms of media:</td><td>Board, LCD Projector, handouts, PPT slides, and stationaries</td></tr>
<tr><td>Reference:</td><td>A. Vitha, 2016, Chromatography: Principles and Instrumentation (Chemical Analysis: A Series of Monographs on Analytical Chem), 1st ed., Wiley
B. Pradyot Patnaik, 2017, Handbook of Environmental Analysis: Chemical Pollutants in Air, Water, Soil, and Solid Wastes, 3rd Ed., CRC Press
C. Hazlina Junoh, Juhana Jaafar, Nik Nordin, Ahmad Ismail, Mohd Othman, Mukhlis Rahman, Farhana Aziz, Norhaniza Yusof. (2020) Performance of Polymer Electrolyte Membrane for Direct Methanol Fuel Cell Application: Perspective on Morphological Structure. Membranes 10:3, pages 34.
D. O. V. Rodinkov, A. S. Bugaichenko, L. N. Moskvin. (2020) Static Headspace Analysis and Its Current Status. Journal of Analytical Chemistry 75:1, pages 1-17.
E. Siti Sulastri dan Susila Kristianingrum, 2001, Metode Pemisahan dan Analisis Kimia, FMIPA, UNY
F. Skog and West, 1996, Fundamental of Analytical Chemistry, Sounder College Publishing, New York
G. Khopkar, S. M., 1990, Konsep Dasar Kimia Analitik, UI Press, Jakarta
H. Yoseph Wang, 1984, Stripping Analysis, John Wiley and sons, New York
I. Ritchey GM and Ash Brook, 1984, Solvent Extraction, John Wiley and sons, New York
J. David Harvey, 2000, Modern Analytical Chemistry, Mc Graw Hill, New York
K. Buchari, 1990, Analysis Instrumental</td></tr>
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	L. Suyanta dan Buchari, 2000, Seri Analisis Elektrokimia M. David K Gosser, 1993, Cyclic Voltammetry, VCH Publisher, New York N. Yoseph Wang, 2000, Analytical Electrochemistry, John Wiley and sons, New York O. Allen J Bard and R Faulkner, 1980, Electrochemical Methods, John Wiley and sons, New York

PLO and CO mapping

CO	PLO									
	Attitude	Generic Skills		Knowledge				Specific Skills		
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1				√						
CO2				√						
CO3					√					
CO4					√					
CO5								√		
CO6								√		
CO7										√
CO8										√