



**UNIVERSITAS NEGERI JAKARTA  
FACULTY OF MATHEMATICS AND  
NATURAL SCIENCES CHEMISTRY STUDY PROGRAM**

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**Bachelor in Chemistry**

**MODULE HANDBOOK**

Module name:	Separation Chemistry and Instrumental Practicum				
Module level, if applicable:	Undergraduate				
Code:	33250292				
Sub-heading, if applicable:	-				
Classes, if applicable:	-				
Semester:	5 <sup>th</sup>				
Module coordinator:	Dr. Fera Kurniadewi, M.Si.				
Lecturer(s):	1. Prof. Dr. Erdawati, M.Sc. 2. Dra. Tritiyatma H., M.Si. 3. Yussi Pratiwi, M.Sc.				
Language:	Bahasa Indonesia (Indonesian Language)				
Classification within the curriculum:	Compulsory Courses in the third year (5 <sup>th</sup> semester) Bachelor Degree				
Class Size	40				
Type of Teaching	In class activity : Team Based Project and Project based Learning Structured activity : Group Discussion using WorkSheet Independent activity : Individual task				
Teaching format / class hours per week	Learning activity can be carried out in the form of <b>Laboratory activity: 340 minutes per week</b> <ul style="list-style-type: none"> <li>- Safety induction: 1 time (MSDS, safety equipment, waste disposal)</li> <li>- Preparation: 1 time (chemical preparation and experiment equipment)</li> <li>- Laboratory work: 10 times (10 project topics, i.e pretest, practicum activity, and writing report)</li> </ul> <b>Discussion:</b> 340 minutes for 2 time (presentation and discussion of practical results) <b>Examination:</b> 340 minutes for 2 times (mid and final examination)				
Workload:	<b>Type</b>	<b>CU</b>	<b>Laboratory Activity</b>	<b>Discussion</b>	<b>Examination</b>
	P	2	73,66 h 2,44 ECTS	5,66 h 0,188 ECTS	11,33 h 0,372 ECTS

Credit points:	2 CU (3 ECTS)																							
Prerequisite course(s):	Basic Chemistry Practicum, Qualitative and Quantitative Analysis Chemistry Practicum																							
Course Outcomes:	<p>After taking this course the students have ability to:</p> <p>CLO 1. Apply the concept of boiling point difference to separate a compound from a sample</p> <p>CLO 2. Apply the concept of difference in solubility to separate a compound from a sample</p> <p>CLO 3. Applying separation methods based on the concept of differences in solubility and spectrometry on complex compounds</p> <p>CLO 4. Apply electrochemical concepts to separate an ion</p> <p>CLO 5. Classifying planar chromatographic methods</p> <p>CLO 6. Applying the concept of metal extraction method</p> <p>CLO 7. Spectrophotometric analysis of two-component mixtures</p> <p>CLO 8. Applying the UV-Vis spectrophotometer method for the analysis of substance content</p> <p>CLO 9. Applying pH meter in potentiometric titration</p> <p>CLO 10. Applying the conductometric method</p> <p>CLO 11. Perform acid-base titration in non-aqua media</p>																							
Content:	<ol style="list-style-type: none"> <li>1. Distillation</li> <li>2. Extraction</li> <li>3. Electrolysis</li> <li>4. Planar Chromatography</li> <li>5. Determination of distribution coefficient and metal extraction</li> <li>6. Analysis of two-component mixtures with UV-Vis Spectrophotometer</li> <li>7. Determination concentration of benzoic acid with UV-Vis Spectrophotometer</li> <li>8. pHmetric method</li> <li>9. Conductometric method</li> <li>10. Acid-base titration method in non-aqua media</li> </ol>																							
Study/exam achievements:	<p>Examinations are conducted as Unit Tests. There are two-unit tests, each covers 4-5 chapters. The final marks are derived from unit tests (70%) and structured tasks (30%).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">No</th> <th style="width: 15%;">CLO</th> <th style="width: 30%;">Assesment Object</th> <th style="width: 20%;">Assessment Techniques</th> <th style="width: 30%;">Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="text-align: center; vertical-align: top;">1.</td> <td rowspan="4" style="text-align: center; vertical-align: top;">CLO 1-11</td> <td>a. Pretest</td> <td rowspan="4" style="text-align: center; vertical-align: top;">Written test</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>b. Report</td> <td style="text-align: center;">30%</td> </tr> <tr> <td>c. Final Assessment Practicum</td> <td style="text-align: center;">40%</td> </tr> <tr> <td>d. Participation</td> <td style="text-align: center;">10%</td> </tr> <tr> <td colspan="3" style="text-align: right;">Total</td> <td style="text-align: center;">100%</td> </tr> </tbody> </table>				No	CLO	Assesment Object	Assessment Techniques	Weight	1.	CLO 1-11	a. Pretest	Written test	20%	b. Report	30%	c. Final Assessment Practicum	40%	d. Participation	10%	Total			100%
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		d. Participation		10%																				
Total			100%																					
Media	Power point presentation, Laptop, Whiteboard, Zoom, Google Classroom, Ms. Teams, Report Result.																							

Literatures	<ol style="list-style-type: none"> <li>1. Gallen W, Ewing. 1985. Instrumental Method For Chemical Analysis. McGraw Hill Higher Education</li> <li>2. Lane, Alam. 2019. Separation Process Essentials. New York. CRC Press</li> <li>3. Robinson W, James. 2021. Instrumental Analytical Chemistry. New York. CRC Press</li> </ol>
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**PLO and CO mapping**

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11	PLO 12	PLO 13	PLO 14
CO1			v					v		v				
CO2			v					v		v				
CO3			v					v		v				
CO4			v					v		v				
CO5			v					v		v				
CO6			v					v		v				
CO7			v					v		v				
CO8			v					v		v				
CO9			v					v		v				
CO 10			v					v		v				
CO 11			v					v		v				