



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

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Bachelor in Chemistry

MODULE HANDBOOK

Module name:	Analytical Chemistry Instrument
Module level, if applicable:	Undergraduate
Code:	33150983
Sub-heading, if applicable:	-
Classes, if applicable:	-
Semester:	5 th
Module coordinator:	Dra. Tritiyatma H., M.Si.
Lecturer(s):	1. Dra. Tritiyatma H., M.Si. 2. Prof. Dr. Erdawati, M.Sc. 3. Yussi Pratiwi, M.Sc.
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory courses in the third year (5 th 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 : 1. Lecture or students response a. Face to face : 50 minutes/SKS b. Structured activity : 60 minutes/SKS c. Independent activity : 60 minutes/SKS
Workload	1 CU (SKS) for bachelor degree equal to 4 work hours per week or 170 minutes. 3x50 minutes face to face, 3x60 minutes structured tasks, 3x60 minutes independent learning, for 16 weeks (including midterm and final examination), a total of 135,99 hours/semester.
Credit points:	3 SKS (4.5 ECTS)
Prerequisite course(s):	Basic Chemistry I and II, Qualitative and Quantitative Analytical Chemistry, Separation Chemistry
	After taking this course the students have ability to: CLO 1. Able to evaluate the quality of a method based on experimental

Course Outcomes:	<p>data</p> <p>CLO 2. Able to choose qualitative & quantitative analysis methods based on the characteristics of the sample by instrumentation</p> <p>CLO 3. Able to determine the structural formula and molecular formula of a substance based on the results of its spectral analysis</p>
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Content:	<ol style="list-style-type: none"> 1. Introduction to Instrumental Analysis 2. UV-VIS Spectrofotometry 3. Atomic Absorption Spektrofotometry 4. Atomic Excitation Spektrofotometry 5. IR Spectrofotometry 6. NMR Spectrofotometry 7. Mass Spectrometry 8. Gas Chromatography 9. High Performance Liquid Chromatography 10. Critical Fluid Chromatography 																					
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 (80%) and structured tasks (20%).</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>No</th> <th>CO</th> <th>Assesment Object</th> <th>Assessment Techniques</th> <th>Weight</th> </tr> </thead> <tbody> <tr> <td rowspan="4">1</td> <td rowspan="4">CLO 1-3</td> <td>a. Individual assignments 1</td> <td rowspan="4">Written test</td> <td>10%</td> </tr> <tr> <td>b. Individual assignments 2</td> <td>10%</td> </tr> <tr> <td>c. UTS</td> <td>40%</td> </tr> <tr> <td>d. UAS</td> <td>40%</td> </tr> <tr> <td colspan="4" style="text-align: center;">Total</td> <td>100%</td> </tr> </tbody> </table>	No	CO	Assesment Object	Assessment Techniques	Weight	1	CLO 1-3	a. Individual assignments 1	Written test	10%	b. Individual assignments 2	10%	c. UTS	40%	d. UAS	40%	Total				100%
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Total				100%																		
Media	Power point presentation, Laptop, Whiteboard, Zoom, Google Classroom, Ms. Teams, Chemsketch.																					
Literatures	<ol style="list-style-type: none"> 1. Skoog. Principles of Instrumental Analysis, 4th Ed. 2000. 2. David, Harvey. Modern Analytical Chemistry. 2000, Mc-Graw Hill. International Ed. 																					

PLO and CO mapping

	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11
CO1						V		V			
CO2						V		V			
CO3						V		V			