



**UNIVERSITAS NEGERI YOGYAKARTA**  
 FACULTY OF MATHEMATICS AND NATURAL SCIENCES  
 DEPARTMENT OF CHEMISTRY  
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**Bachelor of Science in Chemistry**

**MODULE HANDBOOK**

Module name:	Chemical Laboratory Management								
Module level, if applicable:	Undergraduate								
Code:	KMA 6212								
Sub-heading, if applicable:	-								
Classes, if applicable:	2								
Semester:	4 <sup>th</sup>								
Module coordinator:	Susila Kristianingrum, M.Si								
Lecturer(s):	1. Susila Kristianingrum, M.Si 2. Regina Tutik Padmaningrum, M.Si.								
Language:	English								
Classification within the curriculum:	Compulsory Subject								
Teaching format / class hours per week during the semester:	100 minutes lectures, 120 structured activities and 120 individual study per week								
Workload:	Total workload 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):	-								
Course Outcomes	After taking this course, the students are expected to be able to: <table border="1" style="margin-left: 20px;"> <tr> <td>CO1</td> <td>Apply ICT functions in laboratory management</td> </tr> <tr> <td>CO2</td> <td>Apply material management and research flies as chemistry research skills</td> </tr> <tr> <td>CO3</td> <td>Apply laboratory use skills as a means of solving chemical research problems</td> </tr> <tr> <td>CO4</td> <td>Apply laboratory use skills as a chemical research innovation design</td> </tr> </table>	CO1	Apply ICT functions in laboratory management	CO2	Apply material management and research flies as chemistry research skills	CO3	Apply laboratory use skills as a means of solving chemical research problems	CO4	Apply laboratory use skills as a chemical research innovation design
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CO2	Apply material management and research flies as chemistry research skills								
CO3	Apply laboratory use skills as a means of solving chemical research problems								
CO4	Apply laboratory use skills as a chemical research innovation design								
Content:	This course discusses the basic concepts of (1) the understanding, purpose and scope of laboratory management, (2) laboratory understanding and function, (3) laboratory design and layout, (4) tool management, (5) material management, (6) tool selection criteria, (7) work safety in a laboratory, (8) assessment of learning activities in the laboratory, (9) management of laboratory waste, (10) hazardous experimental techniques, (11) MSDS.								
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 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:															
	<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>a. Assignment b. Quiz c. Midterm Exam d. Final Exam</td> <td>Presentation / written test</td> <td>20% 10% 30% 40%</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.	a. Assignment b. Quiz c. Midterm Exam d. Final Exam	Presentation / written test	20% 10% 30% 40%	Total				100%
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Total				100%												
Forms of media:	Handout, Board, LCD Projector, Laptop/Computer, Module, Labwork Equipment and Instrument															
References:	<p>Moran, L. and Masciangioli, T. (2010). <i>Chemical Laboratory Safety and Security A Guide to Prudent Chemical Management</i>. Washington DC: The National Academies Press.</p> <p>Bennett, J. and Pence, H.E. <i>J. Chem. Educ.</i> (2011), 88, 761-763.</p> <p>Stuart, R.B. and McEwen, L.R. <i>J. Chem. Educ.</i> (2016), 93, 516-526.</p> <p>Regina Tutik and Susila Kristianingrum. (2010). <i>Diklat Kuliah Manajemen Laboratorium Kimia</i>. Yogyakarta: FMIPA UNY.</p> <p>Archenhold, et all. (1978). <i>School Science Laboratories, A Handbook of Design Management and Organization</i>. London : John Murray.</p> <p>Everet, K. &amp; Hughes, D. (1979). <i>A Guide to Laboratory Design</i>, London : Butterworths</p> <p>Lehman, J.W. (2008). <i>The Student's Lab. Companion. Laboratory Techniques for Organic Chemistry</i>. New Jersey: Prentice Hall.</p>															

### PLO and CO mapping

	PLO									
	Attitude		General Skill		Knowledge				Specific Skill	
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10
CO1				√						
CO2							√			
CO3							√			
CO4										√