



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:	Corrosion and Electroplating Chemistry	
Module level, if applicable:	Undergraduate	
Code:	KMA 6242	
Sub-heading, if applicable:	-	
Classes, if applicable:	-	
Semester:	7 th	
Module coordinator:	Dr. Isana Supiah Yosephine Louise, M.Si	
Lecturer(s):	Dr. Isana Supiah Yosephine Louise, M.Si	
Language:	Bahasa Indonesia and English	
Classification within the curriculum:	Elective 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 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):	Chemical Equilibrium, Molecular Dynamics	
Course Outcomes	After taking this course the students are expected to be able to:	
	CO1	understand the concept of corrosion and electroplating, apply ways to prevent corrosion
	CO2	apply the electroplating process in life
	CO3	apply the electroplating process for research innovation
Content:	This course discusses about the concept of corrosion and its prevention, as well as electroplating and its uses. The concept of corrosion and its prevention include Concept of Corrosion, Basics of Corrosion, Electrochemical Corrosion, Thermodynamics of Corrosion, Corrosion Kinetics and Electrochemical Applications, Know Forms of Corrosion, Factors Affecting Corrosion, Corrosion due to Water, Atmospheric Corrosion, Corrosion in Soil and Effect of Microbiology, Selection Material, Test and Design, Corrosion Risk, Cathodic Protection, Coating, Corrosion at High Temperatures. Meanwhile, electroplating and its uses include	

	Electroplating Concepts, Electroplating Methods, Electrodeposition and Electro-catalysis, Electrochemical Materials, Waste, Electrochemicals, and Applications.															
Study/exam achievements:	<p>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 given a value of very good or not good attitude if they show it significantly compared to other students in general. The result of attitude assessment is not a component of the final grades, but as one of the requirements to pass the course. Students will pass this course if at least they show a good attitude.</p> <p>The final mark will be weighted as follows:</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</td> <td>a. Performance b. Individual and Group Assignment c. Mid-term Exam d. Final Exam</td> <td>Observation Presentation / written assignment Written test</td> <td>15% 45% 20% 20%</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	a. Performance b. Individual and Group Assignment c. Mid-term Exam d. Final Exam	Observation Presentation / written assignment Written test	15% 45% 20% 20%	Total				100%
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Forms of media:	LCD Projector, Laptop/Computer, Learning Video, <i>Power Point Slides</i>															
References:	<p>Handbooks:</p> <p>A. D.H. Gabe. 1978. <i>Principles of Metal Surface Treatment and Protection</i>, 2nd ed. Pergamon Press: Oxford, 211pp.</p> <p>Suggested Readings:</p> <p>A. Lawrence. 1986. <i>Electroplating Engineering Hand Book</i>. New York: Van Nostrand Rein Hold Company</p> <p>B. Kanani, N. 2004. <i>Electroplating: Basic Principles, Processes and Practice</i>. Oxford, U.K.: Elsevier Advanced Technology</p> <p>C. J.K. Dennis and T.E. 1972. <i>Such, Nickel and Chromium Plating</i>. London: Newnes-Butterworth.</p> <p>D. Ed. R Weiner. 1977. <i>Electroplating of Plastics</i> 360pp., Teddington: Finishing Publications Ltd.</p> <p>E. J.D. Greenwood. 1981. <i>Hard Chrome Plating</i>, 3rd ed., 216pp. Redhill: Portcullis Press Ltd.,</p>															

