

## Module Handbook

<b>Module Name</b>	Electrochemical Analysis					
<b>Module Level</b>	Higher Diploma					
<b>Code, if applicable</b>	VKD325					
<b>Subtitle, if applicable</b>	-					
<b>Courses, if applicable</b>	-					
<b>Semester(s) in which the module is taught</b>	3 <sup>rd</sup> semester					
<b>Person responsible for the module</b>	Puji Kurniawati, S.Si., M.Sc. Ganjar Fadhillah, S.Si., M.Si.					
<b>Lecturer</b>	Puji Kurniawati, S.Si., M.Sc. Ganjar Fadhillah, S.Si., M.Si.					
<b>Language</b>	Bahasa Indonesia					
<b>Relation to curriculum</b>	Compulsory					
<b>Type of teaching, contact hours</b>	Lectures: 100 min/week Structured Assignments/structured activities: 120 min/week Online Activity/individual study: 120 min/week Laboratory work: 340 min/week					
<b>Workload</b>	Total Workload	91 hours; 2 CU				
		Face to face teaching	Structured activities	Independent study	Data Analysis	Exam
	Hours	12	14	14	40	11
<b>Credit Points</b>	2 SCU/3,4 ECTS					
<b>Requirements according to the examination regulations</b>	75% minimum requirements of attendance in theory 100% requirements of attendance in lab activities					
<b>Recommended prerequisites</b>	General Chemistry					
<b>Module objectives/intended learning outcomes</b>	<p>PLO 3: Able to express basic concepts of chemistry, chemical analysis, operation and maintenance of chemical instruments that can be applied in their work</p> <p>Subject LO: Students are able to describe concepts and basic equation of electrochemical analysis Students are able to describe the principle electrochemical analysis method Student are able to apply electrochemical analysis method</p> <p>PLO 7: Students can select and carry out chemical analysis methods and operate instruments by applying the principles of chemical occupational health and safety</p> <p>Subject LO: Students are able to apply principles and build a culture of chemical safety and health Students are able to analyze data and report test results in writing and orally Students are able to build team work in carrying out laboratory procedures</p>					

	Students are able to select and perform electrochemical analysis following procedures																												
<b>Content</b>	<ol style="list-style-type: none"> <li>1. Introduction of electrochemical analysis</li> <li>2. Potentiometry, conductometry, electrogravimetry, polarometry, voltammetry, coulometry, and electrophoresis</li> <li>3. Application of electrochemical analysis</li> </ol>																												
<b>Study and examination requirements and forms of examination</b>	<p>Table Value Graduation</p> <table> <tr><td>A</td><td>80</td></tr> <tr><td>A-</td><td>77.5</td></tr> <tr><td>A/B</td><td>75</td></tr> <tr><td>B+</td><td>72.5</td></tr> <tr><td>B</td><td>70</td></tr> <tr><td>B-</td><td>67.5</td></tr> <tr><td>B/C</td><td>65</td></tr> <tr><td>C+</td><td>62.5</td></tr> <tr><td>C</td><td>60</td></tr> <tr><td>C-</td><td>55</td></tr> <tr><td>C/D</td><td>50</td></tr> <tr><td>D+</td><td>45</td></tr> <tr><td>D</td><td>40</td></tr> <tr><td>E</td><td>0</td></tr> </table>	A	80	A-	77.5	A/B	75	B+	72.5	B	70	B-	67.5	B/C	65	C+	62.5	C	60	C-	55	C/D	50	D+	45	D	40	E	0
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<b>Media employed</b>	Google classroom, zoom meeting, google form, google doc																												
<b>Reading list</b>	<ol style="list-style-type: none"> <li>1. Bard, A.J. dan Faulkner, L.R., 2001, Electrochemical methods: fundamentals and applications, John Wiley &amp; Sons, New Jersey</li> <li>2. Bockris, J. O.M. and Reddy, A. K. N., 2000, Modern Electrochemistry 2B: Electrochemicals in Chemistry,</li> <li>3. Engineering, Biology and Environmental Science 2nd edition, Kluwer Plenum, New York.</li> <li>4. Delahay, P., 2000, New instrumental methods in electrochemistry: theory, instrumentation, and applications to analytical and physical chemistry, Interscience Publ., New York</li> <li>5. Monk, P. M. S., 2001, Fundamentals of Electroanalytical Chemistry, John Wiley &amp; Sons, New York.</li> <li>6. Riyanto, 2012, Electrochemistry and Applied, Graha Ilmu, Yogyakarta</li> <li>7. Wang, 2000, Analytical Electrochemistry (2nd edition), John Wiley &amp; Sons, New York.</li> </ol>																												