MODULE HANDBOOK

Module Name	Electrochemistry Analysis
Module level	Bachelor
Abbreviation, if applicable	8420402105
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	8th / fourth year
Module coordinator(s)	Dr. Pirim Setiarso, M.Si
Lecturer(s)	Prof. Dr. Titik Taufikurohmah, M.Si., Prof. Dr. Nita Kusumawati, M.Sc., Dr. Pirim Setiarso, M.Si., Dr Maria Monica SBW, M.Si
Language	Bahasa Indonesia
Classification within the curriculum	Elective course
Teaching format/class hours per week during the semester:	2 hours lectures (50 min / hour)
Workload:	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 79.33 total hours per semester ~ 3.18 ECTS**
Credit points:	2 CU = 2 x 1.59 = 3,18 ECTS
Prerequisite course(s):	Quantitative Analytical Chemistry,
Targeted learning outcomes:	CLO 1 Students have knowledge of qualitative and quantitative chemical analysis in terms of energetics, dynamics and analysis based on electrical properties including: potentiometric analysis, conductometry, electrogravimetry, polarography and voltammetry CLO 2 Skilled students use tools in conducting qualitative and quantitative chemical analysis based on electrical properties including: potentiometric analysis, conductometry, electrogravimetry, polarography and voltammetry CLO 3 Students have the ability to collaborate and are responsible for conducting qualitative and quantitative chemical analysis based on electrical properties including: potentiometric analysis, conductometry, electrogravimetry, polarography and voltammetry CLO 4 Students have the ability to communicate the results of chemical analysis qualitatively and quantitatively based on electrical properties including:

<table>
<tr><td></td><td>potentiometric analysis, conductometry, electrogravimetry, polarography and voltammetry</td></tr>
<tr><td>Content:</td><td>potentiometry, conductometry, electrogravimetry, polarography and voltammetry</td></tr>
<tr><td>Study / exam achievements:</td><td>Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:
<table>
<tr><td>Assessment Components</td><td>Percentage of contribution</td></tr>
<tr><td>Participation</td><td>20%</td></tr>
<tr><td>Assignment</td><td>30%</td></tr>
<tr><td>Mid-semester test</td><td>20%</td></tr>
<tr><td>Final semester test</td><td>30%</td></tr>
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<tr><td>Media:</td><td>Computer, LCD, White board, laboratory</td></tr>
<tr><td>Learning Methods</td><td>Individuals assignment, group assignment, discussion, presentation, and practicum</td></tr>
<tr><td>Literature:</td><td>Bagotsky, V.S, 2006, Fundamentals of Electrochemistry, New Jersey: John Wiley & Sons

Ewing G.W, 1981, Instrumental Methods Of Chemical Analysis, International Student Edition, Tokyo: McGraw-Hill Kogakusha Ltd
Harvey,D. 2000. Modern Analytical Chemistry. Int. Ed. Singapore: Mc.Graw Hill
Sawyer, Heineman, and Beebe,1984, Chemistry Experiments for Instrumental Methods, New York : John Wiley & Sons
Skoog, D.A,1980, Principles Of Instrumental Analysis,ed II, Tokyo: Holt- Sounders Japan</td></tr>
<tr><td>Notes:</td><td>*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.</td></tr>
<tr><td></td><td>**1 CU = 1.59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019</td></tr>
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