

## MODULE HANDBOOK

Module Name	Environmental Chemistry
Module level	Bachelor
Abbreviation, if applicable	3074213044
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	7 <sup>th</sup> semester / Fourth Year
Module coordinator(s)	Prof. Dr. Suyono, M.Pd.
Lecturer(s)	Prof. Dr. Suyono, M.Pd. Dr. Amaria, M.Si. Dina Kartika Maharani, M.Sc. Rusmini S.Pd, M.Si.
Language	Indonesian
Classification within the curriculum	Compulsory Course
Teaching format/class hours per week during the semester:	3 hours lecturers (50 min per hours)
Workload:	3 x 50 minutes lectures, 3 x 60 minutes structured activity, 3 x 60 minutes individual activity, 14 weeks per semester, 119 total hours per semester ~ 4.77 ECTS**
Credit points:	3 CU x 1.59 = 4,77 ECTS
Prerequisites course(s):	Instrumental Analysis, Organic Chemistry 3, Inorganic Chemistry 3
Targeted learning outcomes:	<ol style="list-style-type: none"> <li>1. Students have knowledge about the sources, reactions, displacement, effects, and changes of chemical species in the air, water and soil, the reciprocal effect of human activities on all of these, and Environmental Impact Analysis (AMDAL)</li> <li>2. Students are skilled at using tools in conducting experiments on water quality parameters from the environment</li> <li>3. Students have the ability to cooperate and are responsible for discussing knowledge about 1) sources, reactions, displacement, effects, and changes in chemical species in air, water and soil, 2) The reciprocal influence of human activities on all the so-called in no.1 and 3) Environmental impact analysis (AMDAL)</li> <li>4. Students have the ability to communicate knowledge about 1) sources, reactions, displacement, effects, and changes in chemical species in the air, water and soil, 2) The reciprocal influence of human activities on all those mentioned in no. 1 and 3) Environmental impact analysis (AMDAL)</li> </ol>
Content:	water pollutant soil pollutant air pollutant

	amdal (Environmental Impact Analysis)	
Study / exam achievements:	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:	
	Assessment Components	Percentage of contribution
	Participation	20%
	Assignment	30%
	Mid-semester test	20%
	Final semester test	30%
Media:	Computer, LCD, White board, laboratory, book, practicum guide book, wastewater treatment plant	
Learning Methods	Individuals assignment, group assignment, discussion, presentation, practicum, observation, project based learning	
Literature:	<ol style="list-style-type: none"> <li>1. De, anil Kumar. 1987. <i>Environmental Chemistry</i>. India: Willey Eastern Limited.</li> <li>2. Faust, S.D and Aly, O.M.1981. <i>Chemistry of Natural Water</i>. London: Ann Arbor Science.</li> <li>3. Manahan, S.E. 1994. <i>Environmental Chemistry</i>. London: Lewis Publishers CRC Pres.Inc</li> <li>4. More,J.W. and More,E.A.,1976. <i>Environmental Chemistry</i>. New York: Academic Press.</li> <li>5. Radojevic, Miroslav and Bashkin, Vladimir N, 1999, <i>Practical Environmental Analysis</i>, Cambridge : Royal Society of Chemistry</li> <li>6. Appropriate scientific articles</li> </ol>	
Notes:	*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.	
	**1 CU = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019	