Module Descriptions

Module designation	**Environmental Chemistry**
Semester(s) in which the module is taught	7th Semester/Fourth Year
Person responsible for the module	Dr. Dina Kartika Maharani, S.Si., M.Sc.
Language	Bahasa Indonesia (Regular Class) Bahasa Inggris (Internasional Class)
Relation to curriculum	Elective course
Teaching methods	Case Method 2 workhours per week (2 x 170 minutes per week)
Workload (incl. contact hours, self-study hours)	1 CU for a bachelor's degree equals 170 minutes (50 minutes face-to-face, 60 minutes structured, 60 minutes independent learning) per week × 14 weeks, excluding mid and end-term exams. = 39.67 work hours per semester = 1.587 ECTS.
Credit points	2 Credit Units (CU) = 3,18 ECTS
Required and recommended prerequisites for joining the module	Basic Chemistry
Module objectives/intended learning outcomes	1. Students have knowledge of the sources, reactions, transport, effects, and fate (or changes) of chemical species in the air, water, and soil, and the reciprocal effects of human activities on all of these. 2. Understanding how to conduct an Environmental Impact Analysis (AMDAL/EIA). 3. Students are skilled in using instruments (or equipment) to conduct experiments on environmental water quality parameters.
Content	A study of the sources, reactions, transport, effects, and change of chemical species in the air, water, and soil; the reciprocal effects of human activities on all of the above; and Environmental Impact Analysis (AMDAL/EIA), accompanied by supporting laboratory activities so that students are able to master the related concepts, become skilled in using instruments, are able to work collaboratively, and can communicate their knowledge and skills scientifically.
Examination forms	Essay and Oral Presentation

Study and examination requirements	**Study and Examination Requirements/Assessment:** 1. Individual assignments (case analysis reports) 2. Group case studies and discussions 3. Laboratory identification tasks 4. Documentation and presentation of case study findings **Assessment Recap (Case Study-Oriented):** 1. Participatory Activities/Case Study Analysis: 52,5% 2. Project Result Assessment / Product Assessment: 25% 3. Portfolio: 7,5% 4. Test:15%% Total: 100%
Reading list	1. Manahan, S . E . 1994. Environmentalchemistry . London: Lewis Publishers C R C Pres. Inc4. More,J. W. and More,E. A.,1976. 2. Environmental Chemistry . New York: Academic Press2.Radojevic,Miroslav And Bashkin, Vladimir N, 1999. Practicalenvironmental Analysis. Cambridge : Royal Society Of Chemistry 3. Purnamasari, A . P. , Cahyaningrum, S . E . , Am Aria, M Aharani D . K . , dan Wijayanto, H. (2023) Edukasi Pengolahanlimbahpeternakan Menjadi Kompos Padat D I Dusun Brau, Kecamatan Bumiaji, Kota Batu, Laporan Pkm ,Surabaya:Lppm Unesa 4. Purnamasari, A . P. , Cahyaningrum, S . E . , Amaria, Maharani D . K . , dan Wijayanto, H. (2023) Modul Pengolahanlimbahpeternakan Menjadi Kompos Padat, Surabaya, Tim Pkm Prodi Kimia 5. Nuniek Herdyastuti*, Rusmini, Sari Edi Cahyaningrum, 2029, Characteristic And Adsorption Capacity Of Activated Carbon Andbentonite To Heavy Metal, Eurasian Journal Of Analytical Chemistry ,4.Sa 6. Ridhayanti, R Rusmini , 2020, Pemanfaatan Karbon Aktif Dari Limbah Kulit Durian Sebagai Adsorben Limbah Industri Tahu Didaerah Sepanjang, Sidoarjo, J. Ilm. Tek. Kim, 4 (1) 7. Le Nabilla, R Rusmini, 2019, Pengaruh Waktu Kontak Karbon Aktif Dari Kulit Durian Terhadap Kadar Cod, Bod, Dan Tss Padalimbah Cair Industri Tahu, Chemica: Jurnal Teknik Kimia 6 (2), 47-536. 8. R Rusmini, S Sukarmin, M Muchlis, 2018, Bioremediation Of Cadmium And Chromium Metal Polluted Soil Using Compost, International Conference On Science And Technology (Icst 2018), 775-778