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<th><strong>Module Name</strong></th>
<th>Water Quality</th>
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<tbody>
<tr>
<td><strong>Module level, if applicable</strong></td>
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<tr>
<td><strong>Code, if applicable</strong></td>
<td>GEL 2204</td>
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<td><strong>Semester(s) in which the module</strong></td>
<td>Third (3(^{rd})) Semester</td>
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| **Person responsible for the module** | Prof. Dr. Sudarmadji, M.Eng.Sc  
Dr. M. Widyastuti, M.T.  
Prof. Ig.L. Setyawan Purnama, M.S.  
Tommy Andryan Tivianton, S.Si., M.Sc. |
| **Lecturer** | Prof. Dr. Sudarmadji, M.Eng.Sc  
Dr. M. Widyastuti, M.T.  
Prof. Ig.L. Setyawan Purnama, M.S.  
Tommy Andryan Tivianton, S.Si., M.Sc. |
| **Language** | Bahasa Indonesia |
| **Relation to curriculum** | For Geography and Environmental Science students only. Students are expected to have a hard skill through knowledge and understanding of the basic understanding of water quality, various environmental factors and processes affecting water quality, natural water characteristics, water sampling, water quality analysis methods, presentation of water quality analysis, water pollution, as well as the use of water and water quality standards. Meanwhile, the soft skill that is expected to grow after students follow this course is creativity, innovation and leadership, built through learning process activities such as tasks, discussions, and presentations. |
| **Type of teaching** | Learning methods are always developed and optimized student centered learning (SCL) approach, by evaluating the methods applied. Based on the results of these evaluations, things that are still less need to be repaired and and the good ones need to be improved. Lecture: 1400 minutes |
| **Workload** | Lecturer, including homework and discussion = 14 meetings x 100 minutes each  
Mid Semester Examination: 100 minutes  
Final Semester Examination: 120 minutes Total workload = 1620 minutes |
| **Credit points** | 2 |
| **Requirements according to the examination regulations** | Must attend lecture for more than 70% |
| **Recommended prerequisites** | - |
| **Module objectives/intended learning outcomes** | 1. After following the lecture topic **Introduction**, students are able to:  
a. Knowing the lesson plan, learning method, appraisal system, evaluation plan, and study contract.  
b. To know the understanding and scope of water quality study.  
c. Know the importance of water quality in Geography |
2. After following the lecture topic **Introduction to Basic Water Quality**, students are able to:
   a. Describe the physical properties of water.
   b. Describe the chemical properties of water.
   c. Describe the biological properties of water.
3. After following the lecture topic **The Influence of Various Environmental Factors on Water Quality**, students are able to:
   a. Explain natural factors (climate, vegetation, geology and time).
   b. Explain non-natural factors (human).
4. After following the lecture topic **Processes that Affect Water Quality**, students are able to:
   a. Explain the hydrological processes.
   b. Explain the physical processes.
   c. Explain the chemical processes.
   d. Explain biological processes.
5. After following the lecture topic **Characteristics of Natural Waters**, students are able to:
   a. Explain the quality of rainwater.
   b. Explain the quality of surface water.
   c. Explain the quality of groundwater.
6. After following the lecture topic **Water Sampling**, students are able to:
   a. Determine the sample point.
   b. Explain sampling techniques and instruments used.
   c. Recognize the way sample recording and numbering.
   d. Know how to preserve samples.
   e. Explain the sources of error in sampling.
7. After following the lecture topic **Water Analysis Method**, students are able to:
   a. Know the gravimetric method.
   b. Know the volumetric method.
   c. Know the colorimetric method.
   d. Know the electrode method.
8. After following the lecture topic **Presentation of Water Quality Data**, students are able to:
   a. Create tabulation of data.
   b. Perform simple statistical analysis.
   c. Create charts / diagrams.
   d. Create a map.
9. After following the lecture topic **Water Pollution**, students are able to:
   a. Identify sources of pollution.
   b. Know the shape / geometry of pollutant sources.
   c. Clarify the motion and contamination of polluters.
   d. Know the types of polluters.
   e. Know the purification process.
10. After following the lecture topic **Water Usage and Water Quality Standard**, students are able to:
| Content | 1. Introduction.  
2. Introduction to Basic Water Quality.  
3. The Influence of Various Environmental Factors on Water Quality.  
4. Processes that Affect Water Quality.  
5. Characteristics of Natural Waters.  
8. Presentation of Water Quality Data.  
9. Water Pollution.  
| Study and examination requirements and forms of examination | Quiz (5 %), participation (5 %), assignment (20 %), discussion (10 %), mid-semester examination (30 %) dan final examination (30 %). Examination is formed in written test. |
| Media employed | - ELISA website  
- Internet  
- Computers  
- Interactive video  
- LCD projector |
| Reading list | Required:  
PP RI Nomor 82 Tahun 2001 tentang Pengelolaan Kualitas Air dan Pengendalian Pencemaran Air  
Supporting literature:  
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