HANDBOOK MODUL

<table>
<tr><td colspan="7">HIDROLOGY</td></tr>
<tr><td colspan="2">Module/Course Title</td><td>Student Workload</td><td>Credits</td><td>Semester</td><td>Frequency</td><td>Duration</td></tr>
<tr><td colspan="2">8720202070</td><td>2 CU x 16 x 170’</td><td>2 CU
3.18 ECTS</td><td>3TH SEMESTER</td><td>ONCE YEAR</td><td>1 SEMESTER</td></tr>
<tr><td>1</td><td colspan="2">Types of courses

LECTURES</td><td>Contact hours

(2CU x 1,59 ECTS) x {(50:170’) x 28,51 Workhours= 26,64</td><td>Independent Study

2CU x 1,59 ECTS) x {(60:170’) x 28,51 Workhours= 31,96</td><td>Structured Study

2CU x 1,59 ECTS) x {(60:170’) x 28,51 Workhours= 31,96</td><td>Class size

MAX 37 STUDENT</td></tr>
<tr><td>2</td><td colspan="6">Prerequisites for participation (if applicable)

None</td></tr>
<tr><td>3</td><td colspan="6">Program Learning outcomes</td></tr>
<tr><td></td><td colspan="6">PLO 2

Able to analyze regional and zoning characteristics (regionalization) in the context of resources and disasters based on the principles and approach of Geography to support sustainable development</td></tr>
<tr><td></td><td colspan="6">PLO 6

Able to make appropriate decisions in the context of solving problems in the field of geography and geography education, based on the results of analysis of information and data</td></tr>
<tr><td></td><td colspan="6">PLO 8

Able to formulate, process, analyze data, and present geosphere information, both physical and human aspects by using geospatial technology for geography learning and research;</td></tr>
<tr><td></td><td colspan="6">PLO 11

Demonstrate a responsible attitude towards work in their area of expertise independently</td></tr>
<tr><td></td><td colspan="6">CLO
1. Able to analyze the characteristics of rainwater, evaporation, surface water and groundwater in an area to support sustainable development. (CPL-2)
2. Able to solve problems of rain, flood and drought, groundwater level decline, and sea water intrusion based on information and data analysis. (CPL-6)</td></tr>
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	3. Able to process, analyze, and present data on rain, evaporation, river flow or groundwater quality using geospatial technology for research. (CPL-8) 4. Able to analyze the characteristics of rainwater, evaporation, surface water and groundwater in an area to support sustainable development. Able to be responsible for conducting hydrological cycle analysis independently (CPL-11)
4	**Subject aims/Content** 1. The role of Hydrology in life 2. Water Cycle 3. Elements, classification, and calculation of the average Precipitation (rain) of the region 4. Factors affecting evapotranspiration and calculating evapotranspiration 5. Factors affecting runoff, diversity of runoff, and runoff discharge 6. Factors affecting Infiltration and the practical importance of infiltration 7. Occurrence of groundwater, groundwater movement, various aquifers 8. Relationship between groundwater and surface water and seawater intrusion
5	**Teaching methods** *Project Base Learning*
6	**Assessment methods** *paper test*
7	**This module/course is used in the following study programme/s as well** -
8	**Responsibility for module/course** COMPULSORY/elective*/ 1. Asdak, C., 2014, *Hidrologi dan Pengelolaan Daerah Aliran Sungai*, Yogyakarta, Gadjah Mada University Press. 2. Hadi Susanto, N. 2015, *Aplikasi Hidrologi*, Yogyakarta : Jogja Mediautama 3. Kodoatie, R.J., 2012, *Tata Ruang Air Tanah*, Yogyakarta: Penerbit Andi 4. Kodoatie, R. J., 2013, *Rekayasa dan Manajemen Banjir Kota*, Yogyakarta: Penerbit Andi 5. Seyhan, E. , 2010, *Dasar-dasar Hidrologi*, Yogyakarta: Gadjah Mada University Press 6. Soemarto, C.D., 2007, *Hidrologi Teknik*, Suabaya: Usaha Nasional