

Module Name	Geohydrology (Practicum)
Module level, if applicable	Advance
Code, if applicable	GEL 0303
Semester(s) in which the module	4 th Semester
Person responsible for the module	Ahmad Cahyadi, S.Si., M.Sc.
Lecturer	Ahmad Cahyadi, S.Si., M.Sc.
Language	Bahasa Indonesia
Relation to curriculum	Geohydrology (Practicum) Course is one of the elective courses in Environmental Geography Study Program, Faculty of Geography. Geohydrology Practicum courses can be taken by students in the fourth semester. This course is a companion of geohydrology courses, both are advanced courses of basic hydrology courses.
Type of teaching, contact hours	STAR (<i>Student Teacher Aesthetic Role-Sharing</i>) is an optimal combination between SCL (<i>Student Centered Learning</i>) and TCL (<i>Teacher Centered Learning</i>).
Workload	Lecturer, including homework and discussion : 12 meetings x 100 minutes each Fieldwork: 1 day Final Semester Examination: 100 minutes Total workload = 1200 minutes
Credit points	1 Credits
Requirements according to the examination regulations	Minimum attendance requirement 70% from total lecture
Recommended prerequisites	Basic Hydrology
Module objectives/intended learning outcomes	After following this course students are expected to be able to: <ol style="list-style-type: none"> 1. Make a contour map of groundwater level 2. Reconstruction flownets 3. Calculation the groundwater hydraulic 4. Determine the recharge and discharge area 5. Calculate groundwater discharge 6. Calculate aquifer properties using theis method, Jacob approximation method, Chow method, theis recovery method, slug test, auger hole, inverse auger hole, and infiltration using Horton's model 7. Read and acquisition of data 8. Acquisition, processing, and interpretation of geoelectrical data 9. Analysis of groundwater resources
Content	<ol style="list-style-type: none"> 1. Reconstruction Flownets 2. Groundwater discharge calculation 3. Pumping test I: Theis method and Jacob approximation method 4. Pumping test II: Chow method and theis recovery method

	<ol style="list-style-type: none"> 5. Pumping test III: Slug test 6. Infiltration 7. Auger hole 8. Invers auger hole 9. Reading AWLR data 10. Geoelectrical data analysis 11. Analysis of groundwater resources
Study and examination requirements and forms of examination	<ol style="list-style-type: none"> 1. Pre-test 2. Individual assignment – written 3. Attendance – summary from presence list 4. Final exam – written and/or oral
Media employed	<ol style="list-style-type: none"> 1. Online sources 2. Computers 3. Case in the field 4. LCD projector
Reading list	<p>Brown, A.G. 1995. <i>Geomorphology and Groundwater</i>, Chichester: John Wiley and Sons.</p> <p>Fetter, C.W. 1988. <i>Applied Hydrogeology</i>. New York: Mac Millan Publishing.</p> <p>Freeze, R.A. and Cherry, J.A. 1979. <i>Groundwater</i>. New Jersey: Englewood Cliff, Prentice Hall Inc.</p> <p>Gilli, E.; Mangan, C. and Mudry, J. 2012. <i>Hydrogeology: Objectives, Methods, Applications</i>. Boca Raton: CRC Press.</p> <p>Hem, J.D. 1970. <i>Study and Interpretation of the Chemical Characteristic of Natural Water</i>. Washington D.C.: United State Government Printing Office.</p> <p>Hiscock, K.M. 2005. <i>Hydrogeology: Principles and Practice</i>. Oxford: Blackwell Publishing.</p> <p>Kruseman and de Ridder, 1990. <i>Analysis and Interpretation of Pumping Test Data</i>. ILRI, Wagenigen, the Netherlands</p> <p>Margat, J. and van der Gun, J. 2013. <i>Groundwater Around the World</i>. Boca Raton: CRC Press.</p> <p>Moore, J.E. 2002. <i>Field Hydrogeology: A Guide for Site Investigations and Report Preaparation</i>. Boca raton: CRC Press.</p> <p>Nonner, J.C. 2003, <i>Introduction to Hydrogeology</i>. Deflt: A,A, Balkema Publisher.</p> <p>Sen, Z. 2015. <i>Practical and Applied Hydrogeology</i>. Waltham, UK: Elsevier.</p> <p>Tanuguchi, M. and Holman, I.P. 2010. <i>Groundwater Response to Changing Climate</i>. Boca Raton: CRC Press.</p> <p>Todd, D.K. and Mays. 2005. <i>Groundwater Hydrology</i>. New York, John Wiley and Sons</p>

	<p>Walton, W.C. 1970. <i>Groundwater Resources Evaluation</i>. Tokyo, Mc Graw Hill Book Company</p> <p>Weight, W.D. 2008. <i>Hydrogeology Field Manual, Second Edition</i>. New York: The McGraw-Hill Companies, Inc.</p> <p>Younger, P.L. 2007. <i>Groundwater in the Environment</i>. Oxford, United Kingdom: Blackwell Publishing.</p>
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