



MODULE HANDBOOK

Hydrometeorology Modeling

Andry Rustanto, S.Si., M.Sc.

Undergraduate Study Program for Geography
Faculty of Mathematics and Natural Sciences
Universitas Indonesia

Hydrometeorology Modeling

Module designation	Hydrometeorology Modeling
Semester(s) in which the module is taught	Sixth (6th) Semester
Person responsible for the module	Andry Rustanto, S.Si., M.Sc.
Lecturer	<ol style="list-style-type: none"> 1. Andry Rustanto, S.Si., M.Sc. 2. Kuswantoro, S.Si., M.Sc. 3.
Language	Bahasa Indonesia
Relation to curriculum	Elective
Teaching methods	Student-centered Learning and combination with Cooperative Learning
Workload (incl. contact hours, self-study hours)	<ol style="list-style-type: none"> 1. Lectures: 100 minutes per week per semester 2. Assignment: 120 minutes per week per semester 3. Independent study: 120 minutes per week per semester 4. Minutes x weeks x semester: $340 \times 14 \times 1 = 4760$ minutes per semester 5. Midterm Examination: 100 minutes per semester 6. Final Examination: 100 minutes per semester 7. Total workload per semester: 4950 minutes / 82 hours 40 minutes
Credit points	2 (Two)
Required and recommended pre-requisites for joining the module	<ol style="list-style-type: none"> 1. Principles and Perspective in Physical Geography 2. System and Process of Physical Geography
Module objectives/intended learning outcomes	Hydrometeorological modeling courses is one of the means in developing the knowledge and application of basic theories regarding systems and processes in physical geography, especially in the atmospheric and hydrocpherral aspects. The topics discussed include meteorological modeling studies, hydrological modeling and the integration of the two modeling for case studies of flood discharge predictions and flood inundation areas.
Content	<ol style="list-style-type: none"> 1. Introduction and Scope of Hydrometeorology Modeling Studies 2. The basic concept of metorological modeling 3. Monitoring regional meteorological conditions: Database measurement and remote sensing 4. Statistical prediction method 5. Result Verification Method 6. Utilization of rainfall data observation and satellite model 7. Meteorological Drought Model: SPI and SPEI 8. Meteorological Model Flood Rainfall Based on Statistics 9. Hydrological models of flood discharge with HEC-HMS 10. Hydrometeorological Model Flood with HEC-RAS
Examination forms	-
Study and examination requirements	<ol style="list-style-type: none"> 1. Individual Score (30%) 2. Group and Presentation Score (20%) 3. Mid Examination (25%) 4. Final Examination (25%)

Reading list	Sene, K. 2009. Hydrometeorology: Forecasting and Applications. Springer Dordrecht Heidelberg London New York Triatmodjo, B. (2008) Hidrologi Terapan. Beta Offset USA USACE. 2000. Hydrologic Modeling System HEC-HMS: Technical Reference Manual. USA USACE. 2016. HEC-RAS 5.0 User's Manual
--------------	--