

Course number		U-LAS15 20010 LE58						
Course title (and course title in English)	Introduction to Hydrology-E2 Introduction to Hydrology-E2				Instructor's name, job title, and department of affiliation	Disaster Prevention Research Institute Professor,Sameh Kantoush		
Group	Natural Sciences			Field(Classification)		Earth Science(Development)		
Language of instruction	English			Old group	Group B		Number of credits	2
Number of weekly time blocks	1	Class style	Lecture (Face-to-face course)			Year/semesters	2026 • First semester	
Days and periods	Thu.4		Target year	Mainly 1st & 2nd year students		Eligible students	For science students	
[Overview and purpose of the course]								
Water is considered essential to life and, without a doubt, is vital to our lives. To manage the world's increasingly scarce water resources, we must understand how water moves around the planet and what influences water quality. This course aims to build a basic understanding to study the utilization of natural resources and natural disasters on the earth. Moreover, we will discuss water availability on the planet, basic hydrological phenomena to create water circulation and the water budget. Based on this basic knowledge, all students will study the earth's freshwater system and form a basis for mutual international understanding by comparing Japanese and foreign countries' case studies.								
[Course objectives]								
The goals are to understand how hydrology and hydrological applications can be used to secure water for people, based on a sound scientific understanding of hydrologic processes and water budget.								
Course Outcomes:								
By the end of this course, students will:								
- Be aware of water resources issues in Japan and global scale. - Be able to qualitatively and quantitatively describe the main processes in the hydrologic cycle, surface, and groundwater hydrology. - Be able to analyze hydrographs and understand the measurement of streamflow.								
PRACTICAL SKILLS: On completion of this course students should be able to:								
- Calculate the water budget of a watershed. - Calculate average precipitation streamflow. - Calculate infiltration. - Estimate evaporation rates and evapotranspiration. - Define the relationship between rainfall and hydrograph analysis. - Measure the flow discharge and velocity in the stream.								
[Course schedule and contents)]								
Week 1: Introduction: Hydrological Cycle and Processes								
Week 2-3: Water Budget and cloud formation								
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Week 4: Precipitation Forms, Types, and Measurements
Week 5: Rainfall statistics: Areal Precipitation& Data Analysis
Week 6: Runoff and Hydrographs: Measuring Surface Runoff River
Week 7: Evaporation: Process, Measurement, and Estimation
Week 8-9: Infiltration: Process, Measurement, and Estimation
Week 10-11: Semester Project Presentations
Week 12: Groundwater Hydrology
Week 13-14: Flooding: Monitoring, Prediction, and Mitigation
Week 15: Feedback

[Course requirements]

None

[Evaluation methods and policy]

The student will be assessed in the course based on assignments (30%), class attendance, chapter readings, in-class active participation (30%), and the semester project report and presentation (40%).

[Textbooks]

Instructed during class

[References, etc.]

(References, etc.)

Introduced during class

[Study outside of class (preparation and review)]

The instructor will provide additional materials, solved examples, and model answers for assignments.

[Other information (office hours, etc.)]

Class participation and questions are very welcome during the lectures or at the end of the lecture. The schedule of office hours will be announced later. Moreover, if you have extra questions, students may contact instructor by email.

[Essential courses]