

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRICAL ENGINEERING
ABET COURSE SYLLABI

ICH2204 HYDROLOGY

Créditos y horas:	10 UC credits/10 hours (4 h Lectures; 0.5 h. Assistantship and 5.5 h. Independent learning experiences)
Profesor:	Jorge Gironás
Coordinador:	Jorge Gironás
Bibliografía:	Chow, V. T., Maidment D. R. y Mays L. W. (1994). Applied Hidrology, Ed. Mc Graw Hill.
Descripción:	This course is dedicated to the quantitative and qualitative study of the elements and processes of the hydrologic cycle, and the applications in Civil Engineering.
Prerequisitos:	EYP 2113 Probability – Statistics and ICH1104 Fluid Mechanics
Co-requisitos:	None
Tipo de curso:	Required
Objetivos de aprendizaje:	<ul style="list-style-type: none">• Identify and describe the role of hydrology in engineering design.• To know the fundamental principles controlling the hydrological processes and the interaction among them, and to develop models able to represent these processes and interactions.• Describe and select techniques and equipment for hydrometeorological monitoring, and to interpret, manage, and characterize data through probabilistic and statistical models.• To perform hydrologic analysis through mathematical and computational methods to characterize the behavior of hydrological systems and their components, considering the temporal and spatial variability.• To perform the hydrologic design of civil works such as culverts, urban drainage systems, dams, and channels.•
Relation of Course to ABET Criteria:	<ol style="list-style-type: none">a. Knowledge of mathematics, science and engineeringb. Design and conduct experiments: analyze and interpret datac. Design a system, component, or processd. Multidisciplinary teamse. Identify, formulate, and solve engineering problemsf. Professional and ethical responsibilityg. Effective communication

k. Techniques, skills, and modern tools for engineering practice.

Topics covered:

INTRODUCTION

1. General

PHYSICAL HYDROLOGY

2. Principles of climate and meteorology

3. Precipitation

4. Evaporation and evapotranspiration

5. Abstractions and infiltration

6. Runoff

7. The river basin

HYDROLOGICAL ANALYSIS AND DESIGN

8. Probability and statistics in hydrology

9. Rain-runoff models

10. Flood routing

11. Hydrologic modelling