

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

ICH1005 CHALLENGES IN WATER RESOURCES AND ENVIRONMENT

Credits and contact hours:	10 UC credits/ 10 hours (4,5 h. Lectures and 5,5 h. Independent learning experiences)
Instructor's name:	Gonzalo Pizarro
Course coordinator's name	Gonzalo Pizarro
Textbook:	Pennington, K.L. y Cech, T.V. Introduction to Water Resources and Environmental Issues. Cambridge University Press, 2010.
Course Catalog Description:	In this course students early approach to the study of water and other fluids in natural and artificial systems, considering the interaction with the land, the environment and society and welfare. The fundamentals of qualitative and quantitative study of the elements and processes of the hydrologic cycle, runoff in hydraulic systems, and operation of environmental systems are presented. These physical, chemical and biological aspects are studied in the context of relevant issues for the country.
Prerequisite Courses:	FIS1513 Statics – Dynamics or ICE1513 Statics and Dynamics
Co-requisite Courses:	None
Status in the Curriculum:	Required Crr 2013
Course Learning Outcomes:	<ol style="list-style-type: none">1. Identify and understand the components of the water cycle and watershed.2. Model conceptually natural and artificial hydraulic systems.3. Build laboratory experiments to study hydraulic phenomena and hydrological processes.4. Meet transversal issues relevant to the country whose solution requires the application specific to the tools Hydraulic and Environmental Engineering.
Relation of Course to ABET Criteria:	<ol style="list-style-type: none">a. Knowledge of mathematics, science and engineeringe. Identify, formulate, and solve engineering problemsj. Knowledge of contemporary issuesk. Techniques, skills, and modern tools for engineering practice.

Topics covered:

1. Introduction
2. Hydrologic Cycle
3. Water Quality
4. The watershed and groundwater
5. Rivers
6. Water and natural disasters
7. Water and Energy
8. Water and sustainable development