

**Department:** Mining Engineering

**Division:** Mining Exploration

**Level and Major:** MSc, Mining Exploration

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**Course Title:** Advanced Hydrogeology

**Number of Credits:** 2

**Lecturer:** Dr. Homayoon Katibeh

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### **Course Goals and Objectives**

This course aims to familiarize students with the advanced and sophisticated concepts in the field of groundwater seepage and hydraulic of water wells, and requirements in hydrogeology science.

### **Course Topics**

- Essential aspects of hydrogeology and aquifer characteristics
- Darcy's Law
- Bernoulli' Law
- Flow nets
- Analytical solutions of governing equation on seepage flow
- Water well hydraulics in complicated cases
- Saltwater intrusion in coastal aquifers
- Upcoming aquifers in ocean islands

### **Reading Resources**

- Groundwater Hydrology by D K Todd
- Groundwater Hydrology, Homayoon Katibeh, Yazd University (in Persian)
- Land and Water Resources, Mahmoud Sedaghat, Payam Noor Publications, (in Persian)