# Announcement of graduate course in "Hydrogeology for Rock Engineers", 4.5 hecs

A graduate course in "Hydrogeology for Rock Engineers" (4.5 hecs) will be arranged by the Division of GeoEngineering at Department of Civil and Environmental Engineering, Chalmers University of Technology. The course will be held at three occasions, starting November 7<sup>th</sup> (see scheduled dates below).

#### General aim

The course is aimed primarily for PhD students with fundamental expertise in rock engineering or groundwater exploration but who need more in-depth understanding of groundwater occurrence and flow in fractured media.

## **Topics**

The course will cover the following topics:

- The crystalline basement and its fracture systems
- Analysis of groundwater flow in fractured rock
- Statistical analysis of hydrogeological data
- Hydrogeology of hard rock
- Groundwater in tunnels and other underground constructions
- Effects of underground constructions on groundwater
- Hydrogeology in pre-investigations, design and construction

Some of the topics will be presented as lectures and some topics will form the basis for collective analysis and dialogue in course seminars.

# **Course instructors:**

Åsa Fransson, Civil and Environmental Engineering, GeoEngineering, asa.fransson@chalmers.se

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#### **Schedule**

The following dates are scheduled for the course:

2012, Nov 7: 10-16

2012, Nov 8: 8-12

2012, Dec 10: 10-16

2012, Dec 11: 8-12

2013, Jan 23: 10-16

2013, Jan 24 8-15

#### Course fee

The course is free for PhD students.

The course is open for participants from the industry with a Master level degree and basic skills in hydrogeology. For this category of participants the fee is 5000 SEK.

Please observe that costs for meals, accommodation and travels have to be covered by the participants respectively.

#### **Course literature**

Gunnar Gustafson, 2012. Hydrogeology for Rock Engineers. BeFo/ ISRM, Stockholm

Articles and reports handed out during the course.

## **Examination and grading**

Students will be graded pass/fail on their active participation in class and accomplishment of assigned task/project work.

## **Application**

To sign up please contact maria.mossberg@chalmers.se

The course is limited to max 15 participants on a first come first serve basis.

For further information don't hesitate to contact Åsa Fransson or Lars O Ericsson.