SVENSKA BERGTEKNIKFÖRENINGEN
Swedish Rock Engineering Association

Advanced Course in Rock Grouting

Developing the craftsmanship of rock grouting into the art of engineering

Course administrator: Swedish Rock Engineering Association/www.svbergteknik.se

Part 1: 4 September 2019 in Helsinki, Finland (following Nordic Grouting Symposium, 2-3 September). Participation is possible in person or by video streaming. *(Participation in Part 1 only, is possible).*

Part 2: 22-24 October 2019 at SKB Äspö Hard Rock Laboratory, Oskarshamn, Sweden.

Grouting technology for fractured rock has been developed for the last 30 years based on research together with practice making Sweden one of the leading nations in this field. The theoretical understanding has a major impact on design of practical grouting.

Course aim:

Overall goal is to provide the international geotechnical community with a better understanding of the fundamentals for rock grouting and the parameters that control the grouting process. The main topics of the course are:

- Design and control of grout spread in rock fractures
- Adopt grouting observations and refusal criteria to design
- Assess hydrogeological and geological parameters for grouting design
- An understanding of the rheological parameters used for describing grouts
- A conceptual understanding of the grouting system given the equipment, the grout and the rock mass
- A review of newest research in grouting.

Who should attend:

This course is relevant to engineers in both tunneling and dam construction:

- Designers, contractors, clients and post graduate students involved in underground construction projects as well as in the field of hydropower and dams
- Skilled project designers with expertise who need more in-depth understanding in this field
- Engineers and geologists dealing with grouting design

Part 1 (Hilton Helsinki Airport, Finland): Theory and a course task.

Part 2 (SKB Äspö Hard Rock Laboratory, Sweden):

Background, design and grout theory. A unique opportunity with execution of an in-situ grouting test at SKB's lab incorporating hydraulic tests, grout mixing with rheology assessment, with self-developed design and grouting. Follow up with other design considerations.

How to attend

Part 1*:

A. Attend the course in Helsinki (limited number of participants, first come first served).
B. Attend by streaming "live" 4 September on your device.
C. See the recorded part 1 later at your convenience.

**Participation in Part 1 only, is possible; course task is then not included.*

Part 2:

A. Part 2 will take place at Äspö Hard Rock Laboratory, Sweden. Limited access, so first come first served. To participate in part 2, one must have completed part 1 of the course.

Registration & Program:

Registration opens 1 July on our website.
A final program will be sent to all participants i August.

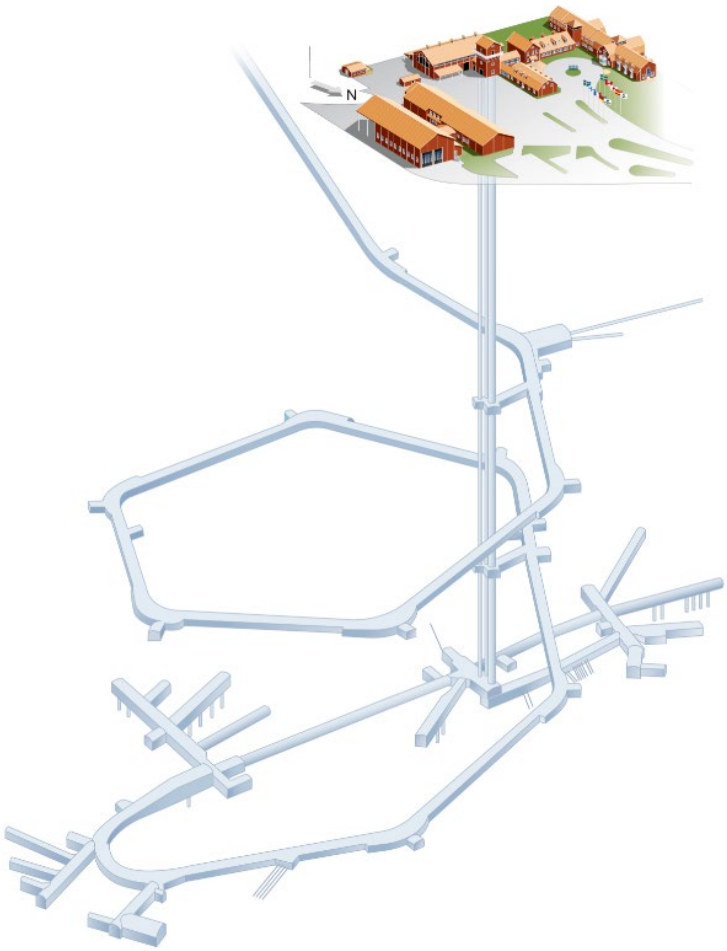
In the unlikely event of too few participants to hold the course, the fee will be refunded.

About the lecturers

Dr Håkan Stille, Professor Emeritus of Soil and Rock Mechanics at the Royal Institute of Technology (KTH) in Stockholm, has worked extensively in industry and academia. He has supervised more than 30 PhD students, of whom ten have studied rock grouting from different perspectives. He has also been involved in geotechnical engineering work throughout the world for more than 40 years.

Dr Lars Olof Ericsson, Professor Emeritus of Engineering Geology at Chalmers University of Technology. Main research fields are hydrogeology, urban hydrology, geothermal energy systems, rock mechanics and engineering of nuclear waste repositories. Dr Ericsson has a background as Geoscientific Coordinator at the Swedish Nuclear Fuel and Waste Management Company (SKB), latest Head of the Division of GeoEngineering at Chalmers University of Technology. Professor Ericsson has supervised 18 PhD Students and is an honorary member of the Swedish Society of Engineering Geology.

Dr Johan Funehag, Professor at Luleå University of Technology, Division of Mining and Geotechnical Engineering. Research Area: Mining and Rock Engineering. Throughout the 17 years in academia and consultancy, Dr Funehag has been spent almost half of the time in the field of research of grouting and engineering projects involving grouting. Considerable amount of field tests consisting of design, execution and follow up has given him allot of "know how" in grouting. Funehag has supervised 3 PhD students and two more are on-going.



Äspö Hard Rock Laboratory at approximately 500 m depth. Illustration Jan Rojmar.
(https://www.skb.com/research-and-technology/laboratories/the-aspo-hard-rock-laboratory/

Äspö Research Village above the Äspö Hard Rock Laboratory, comprising offices, laboratories and workshops. Photo: Curt Robert Lindqvist.