

SYLLABUS

Rock Engineering I 7.5 credits Q0026B

Bergteknik I

Course syllabus admitted: Autumn 2017 Sp 1 - Autumn 2019 Sp 2

**DECISION DATE
2017-06-16**

Rock Engineering I 7.5 credits Q0026B

Bergteknik I

First cycle, Q0026B

Education level	Grade scale	Subject	Subject group (SCB)
First cycle	G U 3 4 5	Berg- och mineralteknik	Mining and Mineral Technology

Entry requirements

In order to meet the general entry requirements for first cycle studies you must have successfully completed upper secondary education and documented skills in English language +

Swedish upper secondary school courses Physics 2, Chemistry 1, Mathematics 3c (specifik entry A8).

Or:

Swedish upper secondary school courses Physics B, Chemistry A, Mathematics D (specifik entry 8)

Selection

The selection is based on final school grades or Swedish Scholastic Aptitude Test.

Examiner

Erling Nordlund

Course Aim

On completion of the course the student should be able to:

- Use different rock engineering design methods
- Contribute partial or holistic solutions to the rock construction design process in a project group
- Define clearly the influence of each unit operation for the entire process
- Describe how fundamental rock engineering development work is carried out
- Identify different solutions and critically modify those solutions as regards the choice of machinery and mining methods.

Contents

The course covers rock construction techniques and methods that are used in order to mine out bodies of ore. The subjects that are treated in this course are: excavation of tunnels, shafts and caverns, unit operations (drilling, blasting, haulage, transport, and reinforcement). Also, mining methods such as open pit mining, room and pillar mining, sublevel stoping and sublevel caving are dealt with. In the drilling section, the principles of drilling as well as description of drilling rigs and boring machines are covered. In the section about blasting, explosives (including chemical composition), safety, calculations of blast designs for bench blasting, road cuttings and tunnels are treated. In section about haulage and transport loaders and other types of loading and transport machines are described. The course also includes sections about auxiliary operations such as ventilation and control of ground water with calculations.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

Lectures and project assignment in a group.

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided. The examination is divided into a written exam (4 credits) and project work (3.5 credits). The project works includes a report.

Literature. Valid from Autumn 2016 Sp 1

- Forsman Bo. (2001) Bergbyggnadsteknik. (118 s). Anmärkning/Note: Kompendium
- Trafikverket (2014) Trafikverkets handbok för ovanjordssprängning. Rapport 2014:044. ISBN: 978-91-7467-566-5. Tillgänglig i elektronisk form på trafikverket.se
- Lindblom, Ulf. (2010) Bergbyggnad. 1 uppl. Stockholm : Liber. (240 s). ISBN 978-91-47-09409-7

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Items/credits

Number	Type	Credits	Grade
0001	Written exam	4	G U 3 4 5
0003	Project work	3.5	U G#

Last revised

by Assistant Director of Undergraduate Studies Eva Gunneriusson, Department of Civil, Environmental and Natural Resources Engineering 2017-06-16

Syllabus established

by Lars Bernspång 2012-04-03