Sustainable Mines of the Future
Summer School Invitation

Sustainable rock drilling and blasting technique

Module 1 (Aalto University)

8.8- 15.9.2023

Remote rock mass characterization

Module 2 (Aalto University)

18.9 -7.11.2024 (registration open in August 2023)

Mining and energy

Module 3 (RWTH Aachen)

Spring 2024 (to be announced later)

Occupational and process safety in mining

Module 4 (Montan Univ. Leoben)

2024 (to be announced later)

Module 1

Sustainable rock drilling and blasting technique

- Introduction to mining and rock excavation techniques
- Modern explosives and detonators
- Rock drilling and blasting theory
- Environmental impacts of blasting
- Sustainable drill and blast design

There will be group exercises organized within the context of lectures which will include visit to a blasting site/research tunnel, identifying different risks and ways to control them and hands on experience related to sustainable blasting design.

For Who?
Bachelor's and Master's students
Max number of participants: 40 students
Credits: 1 ECTS
School is free of charge!

Apply through the google forms:

https://forms.gle/Bpf5RHZnEoEE6BZt8

Registrations open: 15th June, 2023

Deadline for Registration:

2nd August, 2023 by midnight 23:59

For further information contact:
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RWTH AACHEN UNIVERSITY (GERMANY)
AALTO UNIVERSITY (FINLAND)
MONTANUNIVERSITÄT LEOBEN (AUSTRIA)

TERRA project

Summer School:
Sustainable Mines of the Future

COURSE DESCRIPTION

for the Module 1

Sustainable rock drilling and blasting technique

16.6.2023

Name of the course	Sustainable rock drilling and blasting technique
Teacher in charge	MSc Tuomo Hänninen
Teaching period	8.8- 31.8.2023
Level of the Course	BSc and MSc
To whom is this module beneficial	Any BSc or MSc student interested in the raw materials area
Learning outcomes	Understanding of sustainable rock drilling and blasting principles including controlling of environmental impacts
Content	• Introduction to mining and rock excavation • Modern explosives and detonators • Rock drilling and blasting theory and technique • Environmental impacts of blasting • Sustainable drill & blast design
Implementation and assessment methods	Lectures (mandatory) Exercise (mandatory) Site visit (not mandatory). Site visit not confirmed. More information about the site visit in the start of the course.
Course material	Slide shows and animations
Prerequisites	Basic information regarding building or mining industry
Workload and credits	The workload is about 30 hours, corresponding to 1 ECTS. Ask your home university if this module can be considered as official course completion. Diploma is awarded to students who pass the course.
Lectures (contents, when)	08.08.2023 between 16-18, remote lecture 15.08.2023 between 16-18, remote lecture 22.08.2023 between 16-18, remote lecture 29.08.2023 between 16-18, hybrid mode, Lecture hall R2 31.08.2023 between 14-18, hybrid mode. Lecture hall R2
Exercises (contents, when)	Group exercise will be organized in context with lectures and will include: 1. Introduction to a blasting location 2. Identifying and evaluating occupational and environmental risks 3. Reporting the risk assessment and ways to control environmental impacts 4. Designing of sustainable drilling and charging of the blasting field
Assessment	No exam, the exercise will be graded as 0-5.

Registration for courses	Apply through the Google form: https://forms.gle/Bpf5RHZnEoEE6BZt8

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