



NMS
Nordic Mining School



Nordic Mining School

for advanced extractive technology and natural resources management

Co-operation between Luleå University of
Technology and Oulu University

Luleå

FEM, 1-3 December, Rovaniemi

Oulu

Leena Yliniemi
University of Oulu
Oulu Mining School
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Nordic Mining School

for advanced extractive technology and natural resources management

Funded for 2008–2011 by

INTERREG IVA Nord

State Provincial Office of Lapland

County Administrative Board of Norrbotten

Council of Oulu Region

Luleå University of Technology

University of Oulu


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OULUN YLIOPISTO
UNIVERSITY OF OULU





 LTU and Oulu University have a strong tradition in education and research related to all aspects of mining, mineral and metallurgy

 Benefit from the strong co-operation between the universities and the mining industry

 Northern Sweden and Finland the most active mining region of Europe

Luleå

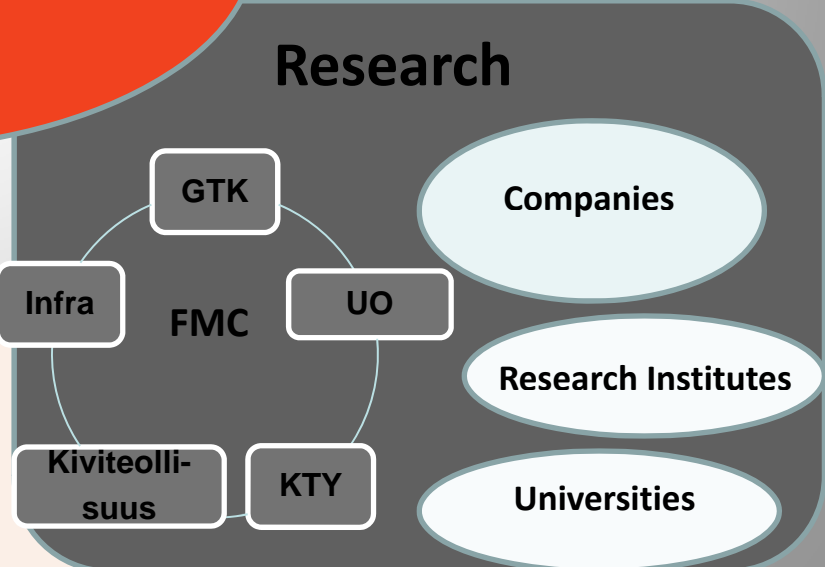
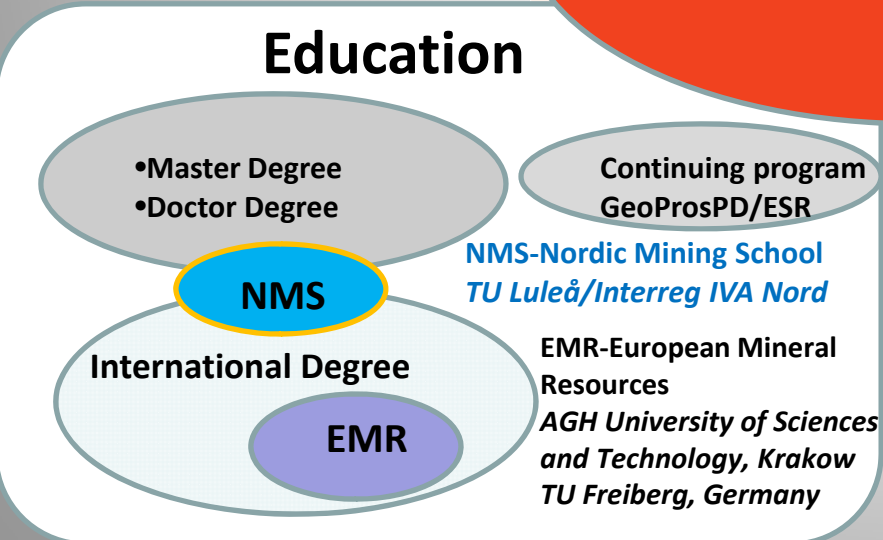
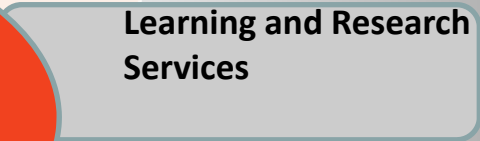
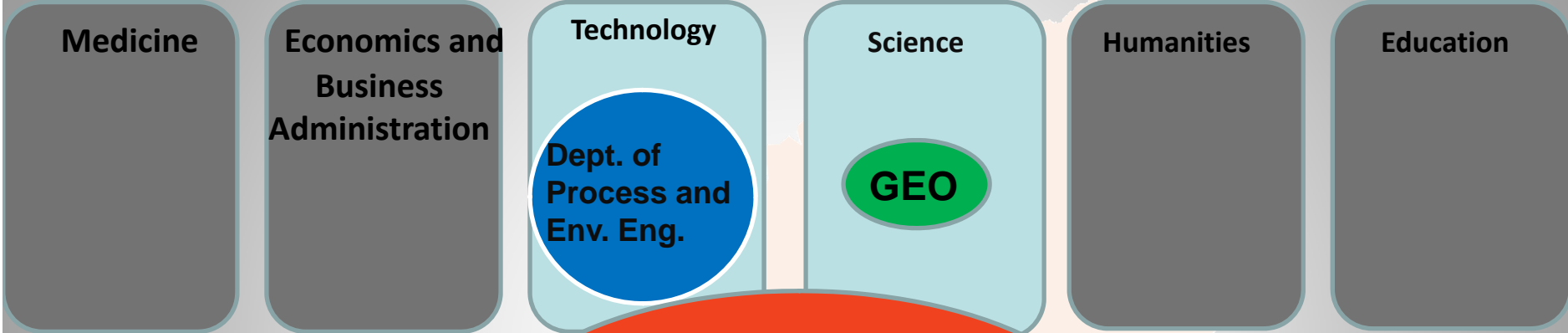
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Nordic Mining School



Life Cycle of Mine

PRE

Active Mine

POST

Pre mining

Post mining

Feasibility Studies – Ore geology- Mine geology - Mine economy

Active mining

Environmental and safety issues

ulu



Nordic Mining School

Aims:



To bring the students at masters level in both universities together



Build the best graduate school in mining related education in Europe



Strengthen the research co-operation in exploration, in mining and environmental engineering, mineral processing, metallurgy, process engineering



Nordic Mining School

Aims:



Operational Autumn-09



3–5 students per university



Increase teacher exchange, distant learning co-operation



Joint professor in “Mineral entrepreneurship”

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Students enroll in a relevant masters programme at either of the universities and spend at least 6 months of their studies at the other university and qualify for a double degree from the Nordic Mining School



Opportunity for an internship where European mining is active and write a masters thesis co-supervised by mining, mineral, metallurgical or exploration industry

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 Courses at masters level

 Courses in:

- exploration and environmental geosciences
- metallurgy
- mining engineering
- mineral processing
- process engineering

 Curriculum in English

 A double masters degree

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Luleå University of technology

Minerals and Metallurgical Engineering

- Mineral processing
- Simulation of mineral processing
- Surface and colloid chemistry
- Hydro-metallurgy
- High-temperature materials
- Steel metallurgy
- Non-ferrous metallurgy
- Instrumental analysis
- Deformation and fracture
- Materials technology and materials selection
- Composite materials
- Material and eco design
- Process analysis
- Senior Design Project in process metallurgy
- Chemical reaction engineering I
- Physical chemistry

Exploration and Environmental Geosciences

- Economic geology
- Freshwater geochemistry
- Exploration and environmental geophysics
- Mine waste
- Isotope geochemistry
- Sampling and analysis of geomaterials
- Ore genetic models

- Quantitative interpretation of geophysical data
- Mining geology
- Geohydrology
- Environmental geochemistry
- Geochemical modelling
- GIS, CAD and image processing
- Quaternary environments
- Geochemical exploration
- Geostatistics and environmental monitoring

Mining and Geotechnical Engineering

- Rock engineering
- Fundamentals of rock mechanics
- Environmental geotechnics
- Design of rock constructions
- Production planning
- Road and railroad engineering
- Applied blasting
- Mining Economy and Risk Evaluation
- Mine Automation
- Dam II, Dam and Dam Safety
- Production Equipment Management
- Simulation Methods
- Operation and Maintenance
- Soil mechanics, continuation course
- Mining Economy and Risk



University of Oulu

Geoscience

- Mining geology
- Ore geology
- Technical mineralogy
- Practical course in fluid inclusion
- Geology of basic layered intrusions
- Geology of carbonatites, alkaline rocks and kimberlites
- Regional ore geology
- LA-ICP-MS –analytics
- Practical course in mineral chemistry
- Mineralogical instrumental analytics

Water and Environmental Engineering

- Groundwater Engineering
- Geoenvironmental Engineering
- Hydrological Processes
- Modelling in Geoenvironmental Engineering
- Advanced Geoenvironmental Engineering
- Environmental Impact Assessment
- Environmental Legislation
- Waste Management of Industry and Communities

- Water Supply Networks
- Field Measurements in Environmental Engineering
- Water and Wastewater Treatment
- Chemical Processes in Water and Wastewater Engineering
- Hydraulics for Environmental Engineering
- Foundation Engineering
- Mine Tailings Engineering

Process and Environmental Engineering

- Basics of Biotechnology
- Bioreactor Technology
- Applied Microbiology
- Environmental and Process Catalysis
- Industrial Ecology
- Research Methodology
- Thermodynamics of Hydrometallurgical Solutions
- Oxidation and Reduction in Pyrometallurgy
- Process Control Engineering I
- Process Optimization
- Digital Control Theory
- Fault Diagnosis and Process Performance Analysis



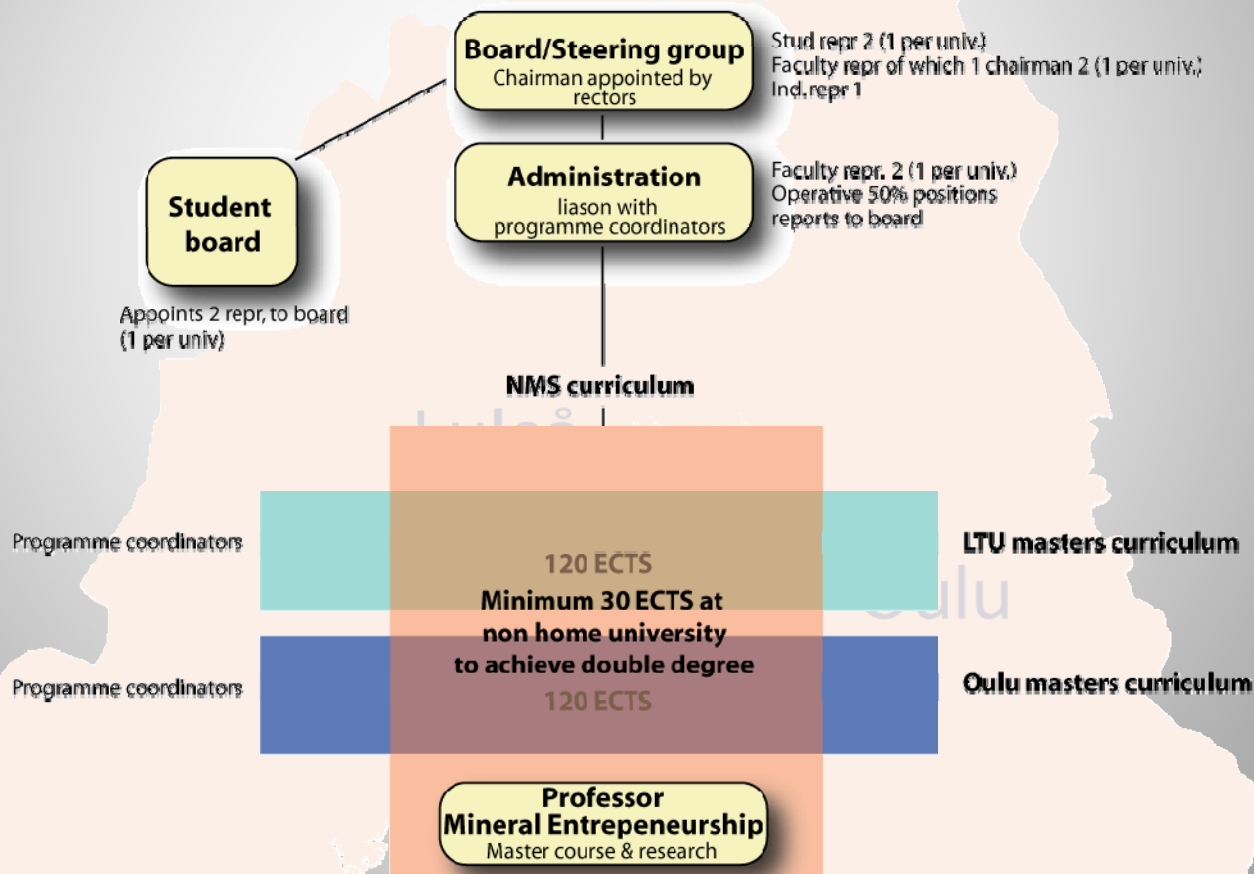
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Nordic Mining School



Organisation Chart

NORDIC MINING SCHOOL (NMS) for advanced extractive technology and natural resource management





Oulu Mining School and Nordic Mining School

- Education for geologists specialized for mining started at Autumn 2007- students 15- M.Sc. Degree 2011
- Education for process engineers specialized for mining started at Autumn 2008- students about 15 – M.Sc. Degree 2010-2011
- NMS-Nordic Mining School- cooperation with Technical University of Luleå started at the autumn 2009- students 5- double degree/M.Sc. (Eng.) Degree 2011
- EMR- European Mineral Resources- international program – 1.5 years – students 5- double degree/M.Sc. (Eng.) Degree
- GeoProsPD- continuing education program 2008 -2010, where participants 11
- New program will start at February 2010



Welcome to the Nordic Mining School!

Study in the most active European mining region, with unsurpassed opportunities for interaction with the mining and exploration industry ... where it is active.

Luleå

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