

## CUSTOMER CASE STUDY

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# Merging the plant and the classroom with AVEVA and Schneider Electric

University of Oulu - [www.oulu.fi/university](http://www.oulu.fi/university)  
Industry - Academia & Mining

## Goals

- Launch students into the mining world fully equipped
- Support the advancement of teaching
- Transform classroom time to link theory to practice

## Challenges

- Students entering the real world were not familiar with the practical part of the mining process

## Results

- Access to real world tools from AVEVA and Schneider Electric
- The pilot plant uses the same processes as a full-scale plant
- Students are prepared to innovate in a real working environment



**Oulu, Finland** – In today's high-tech world, the ancient industry of mining is more important than ever. Modern electronic devices can have more than 35 different minerals in them. Those same electronic devices often leave students disconnected from the practical world around them. The Oulu Mining School within the University of Oulu seeks to connect students with the practical application of mineral processing to support the ongoing revival of the Finnish mining industry.

### A mining revival demands skilled graduates

While Finland has a long mining tradition, growth in the industry has been especially fast in recent years. Smartphones, tablets and computers use gold, copper, zinc and several other minerals to function. The mining industry continuously develops new ways to extract highly valuable metals and minerals efficiently. It has become more and more important for new engineers and operators to understand the theory and practice of mining processes. In Finland, the demand for skilled engineers exceeds the supply. Oulu Mining School works to fill the gap with well-qualified young people.

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“This is a very active mining area. There's a lot of potential and not too many experts, so that's why there's a very high demand for the mining school here.”

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**Professor Saija Luukkanen,**  
Head of Oulu Mining School

### Students need to learn with industrial tools

To connect students to industrial practice, Oulu Mining School operates a pilot plant that is unique in the academic world. The mini pilot-scale concentration plant is a fully functional plant. The plant includes an automatic crushing mill, froth flotation beneficiation, gravity concentrator, magnetic separation equipment, cleaning and recycling units for process water, as well as a lab-scale continuous leaching line, integrating all aspects of the process.

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“We have the same processes here as they have on a full-scale mining plant.”

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**Santeri Kaisanlahti,**  
Plant Manager, Oulu Mining School





To understand and operate the plant, Oulu worked with AVEVA and Schneider Electric to implement the same software and controls tools used by most of the world's largest metals, mining and minerals companies. Students use DYNASIM Dynamic Simulation and advanced process control tools to bring to life the algorithms and technologies behind the real process. Students can simulate the process before running it to understand how theoretical models translate to real world implementation.

“The goal was to show how our solutions help structure the classrooms and the curriculum in a way where the university reflects the real world situations the students will encounter in the field.”

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**Mihaela Hahne,**  
Academic Program Manager, AVEVA

### Industrial tools in an academic environment give students an advantage

The students of Oulu Mining School are at an advantage as the pilot plant provides them with a unique teaching facility for mining processes and unit operations. With industry-leading tools from AVEVA and Schneider Electric, new graduates are prepared to grow the Finnish mining industry and provide metals and minerals to meet tomorrow's demands.

“The collaboration with Schneider and AVEVA is extremely important for us. We've had visiting lecturers so that our students will learn from the expert, not just from us.”

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**Professor Saija Luukkanen,**  
Head of Oulu Mining School