MAPTEK NEWSLETTER
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FORGE

A COMPLETE PLATFORM FOR MINING EDUCATION

The Technological Educational Institute of Western Macedonia, Greece teaches students the use of computers and information technology in mine planning, geotechnical engineering and environmental studies.

The Department of Geotechnology and Environmental Engineering (formerly the Department of Mining Technology) reformed its undergraduate studies program in 1999. Modules such as Geostatistics, Remote Sensing and GIS, and Computer Applications in Mining have been added to the main undergraduate course of study.

These modules include theoretical studies as well as hands-on computer work in the department's Laboratory of Mining Information Technology and GIS Applications. The laboratory is equipped with 12 dual-core workstations and a high resolution projection system.

The Maptek™ Vulcan™ 3D modelling and mine planning software has been the core software package of the laboratory. It is also the platform for study and research in the use of computers in the minerals industry, for the department's students and members of the academic staff.

Vulcan is also used in the mining industry, which means that students have a chance to use the same software as professionals in the field. Lecturers and professors have experienced the benefits of using Vulcan in the classroom ever since Version 3.4 and up to the current Version 8.0.

Over 200 pages of course material have been written specifically for Vulcan, for distribution to third-year students.

A set of exercises has been developed around a Vulcan demonstration dataset, which includes:

> Vulcan project setup and introduction
> Data import
> Triangulation modelling
> Drillhole databases
> Geological modelling
> Block modelling
> Grade estimation
> Open pit optimisation
> Open pit design
> Reserves calculation
> Introductory underground design
> Basic mine access road design

The first 10 exercises are in a sequence - the files and results produced by one exercise are used as input to the next. >

'VULCAN AND ITS APPLICATION TO MINING AND ENVIRONMENTAL PROBLEMS HAS BEEN THE SUBJECT OF FINAL YEAR THESES FOR UNDERGRADUATE STUDENTS WHO WANT TO GAIN A BETTER UNDERSTANDING OF HOW THE SOFTWARE WORKS AND BE MORE PROFICIENT IN ITS USE.'

Ioannis Kapageridis, Assistant Professor in Mining Information Technology

> In this issue

VULCAN IN EDUCATION

> More than 500 educational licences of Vulcan are installed globally

> Maptek professionals teach various topics including mine planning, design and scheduling

> Maptek staff help set and evaluate coursework

> Maptek-sponsored mine design lab trains engineers at South Dakota School of Mines & Technology

MUTUAL BENEFITS

> Equips students with the latest technology and supports them as they pursue careers in mining

> Provides confidence for companies looking to hire people with Vulcan experience

> CONTINUED

The total exposure of students to the use of Vulcan is 4 hours per week, for 12 weeks each semester. Vulcan and its application to mining and environmental problems has also been the subject of a number of final year theses for undergraduate students who want to gain a better understanding of how the software works and be more proficient in its use.

The Laboratory of Mining Information Technology and GIS Applications has also been involved in a campaign to promote Vulcan to mining companies in Greece. The idea is to prove the benefits of using advanced mine planning packages by developing and publishing several Vulcan application case studies. These use real data from companies such as Geohellas SA and LAVA SA in the industrial minerals sector, LARCO GMMSA (nickel) and the Public Power Corporation SA (lignite).

The main aim is to increase the employment options of the department's graduates. The results from these case studies have been published in international mining conferences in Greece and abroad. These are available for download at http://airlab.teikoz.gr/geope/GEOPE_EN/labs/mineitlab.htm

The Laboratory of Mining Information Technology and GIS Applications has also published several research papers based on Vulcan and its scheduling module, Chronos. A research proposal has been recently filed under the National Strategic Reference Framework (ESPA) 2007-2013, specifically the 'ARCHIMEDES III – Support of Research Teams in Technological Educational Institutes'.

The research proposal is titled 'Application of a Multi-Agent System to Mine Scheduling and Simulation of Coal Surface Mines' and is based on the integration of Vulcan, Chronos and an agent-based simulation environment under development in the lab. The research program aims to provide the missing link between short-term planning and scheduling, and fleet management and production control.

Thanks to Ioannis Kapageridis
Assistant Professor in Mining Information Technology

'VULCAN'S INTEGRATED ENVIRONMENT AND EASY TO LEARN GRAPHICAL USER INTERFACE MAKE IT THE IDEAL SOFTWARE FOR TRAINING UNDERGRADUATE STUDENTS.'

Ioannis Kapageridis

BENEFITS OF VULCAN

Students find Vulcan intuitive to use - laboratory training prepares them for the real world