Geotechnical Design for Underground Metalliferous Mines Course

08:00–12.30 AWST, 15–19 May 2023 | Indian Ocean Marine Research Centre Auditorium, The University of Western Australia, Perth, Western Australia and online

EVENT BROCHURE

About the course

This ACG course will cover the critical geotechnical aspects of geomechanical mine design, including the geomechanical data required for design of mine drives, stopes and pillars. Although the course has a strong emphasis on open stope mining, the main geotechnical issues relevant to most underground mining methods will be included.

The course will address numerical modelling, where the basics of different modelling approaches will be covered, and important concepts such as calibration and interpretation of the models will be discussed.

The widely used empirical stability graph method for open stope design will be explained in detail and some of the common mistakes associated with the use of this method in the industry described. Furthermore, new and exciting open stope reconciliation and design approaches currently under development at the ACG will be presented.

Who should attend

Mine managers; geotechnical, mining and rock engineers; geologists; suppliers of ground support, instrumentation and monitoring equipment; mining contractors and consultancies; and mines inspectors may benefit from attending.

This course will benefit industry practitioners seeking to understand and explore the geotechnical aspects of the mine design process.

Facilitator

Associate Professor Johan Wesseloo
Director
Australian Centre for Geomechanics

Sponsorship opportunities are available for this course. Contact the ACG via events-acg@uwa.edu.au to express your interest.

DAY ONE PROGRAM – 15 MAY 2023*

07:30–08:00	Registration

Introduction

- Introduction *A/Prof Johan Wesseloo*

Data for Design

- Intact rock strength *A/Prof Johan Wesseloo*
- Discontinuities *Audrey Goulet*
- Geotechnical core logging and mapping *Denisha Sewnun*
- Rock mass classification *Denisha Sewnun*

DAY TWO PROGRAM – 16 MAY 2023*

General

- Mining methods and geomechanics considerations *Dr Daniel Cumming-Potvin*
- Numerical modelling for mine design *A/Prof Johan Wesseloo*

DAY THREE PROGRAM – 17 MAY 2023*

Drive Design

- Analytical and empirical methods *Dr Daniel Cumming-Potvin*
- Probabilistic methods *Denisha Sewnun & A/Prof Johan Wesseloo*

DAY FOUR PROGRAM – 18 MAY 2023*

Pillars

- Pillar design *A/Prof Johan Wesseloo*

Stopes

- Stope design – stability graph method *A/Prof Johan Wesseloo*
- Stope design – empirical cable bolt design *A/Prof Johan Wesseloo*

DAY FIVE PROGRAM – 19 MAY 2023*

Stopes

- Stope design – dilution control *A/Prof Johan Wesseloo*
- Geotechnical stope reconciliation *Dr Kyle Woodward*

*Program includes daily 30 minute refreshment breaks. Program subject to change.

Register online at acg.uwa.edu.au/event-registration/product/geo-design-ug

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About the presenters

Dr Daniel Cumming-Potvin
Project Lead – mXrap Development
Australian Centre for Geomechanics

Daniel completed his Bachelor of Mining Engineering and PhD at The University of Western Australia in 2012 and 2018 respectively. He has worked at a number of underground metal mines in Australia, specialising in the areas of ground support, monitoring and mine seismicity. Daniel is currently project lead for mXrap.

Denisha Sewnun
Master's Student and Research Fellow
Australian Centre for Geomechanics

Denisha has more than 13 years of experience in the geomechanics aspects of open pit and underground mining projects. Denisha is currently a Master of Philosophy student involved in the in situ testing of ground support using blasting, which forms part of the Ground Support System Optimisation research project (GSSO3). She also assists with the Discrete Fracture Network/Block Model Limit Equilibrium Ground Support Design Tools research project and is a part of the mXrap team, where she works on the development of the Rock Mass Data Analyser application.

Dr Kyle Woodward
Research Fellow
Australian Centre for Geomechanics

Kyle was initially associated with the ACG in 2010 through his final year research project for his undergraduate Bachelor of Engineering (Mining) degree at The University of Western Australia. Kyle has been involved in various ACG projects including the Mine Seismicity and Rockburst Risk Management project and the mXrap Consortium. Kyle was project leader for the ACG Stope Reconciliation and Optimisation Research project from 2016 to 2019. He is currently working on the next phase of this research project along with work associated with the mXrap Consortium.

Audrey Goulet
Research Fellow
Australian Centre for Geomechanics

Audrey joined the ACG in 2023 as a research fellow while finishing her PhD degree in mining engineering at Université Laval (Quebec, Canada). The objective of her thesis was to improve understanding of the behaviour of rock mass, such as the seismic responses to development blasts, through an innovative approach to characterise the geotechnical properties of the rock mass. She focuses on improving automation in the data input (in the Rock Mass Data Analyser application) and DFN calibration processes.

Associate Professor Johan Wesseloo
Director
Australian Centre for Geomechanics

Since obtaining a BEng (Civil) and MEng (Geotechnical) from The University of Pretoria, Johan has been involved in geotechnical engineering in open pit and underground environments throughout 14 countries. Johan joined the Australian Centre for Geomechanics (ACG) in 2007 as a research fellow. During his time at the ACG, Johan has been involved in research, the supervision of postgraduate students and geotechnical training. He also performs geotechnical and mining-induced seismicity reviews providing him with the valuable opportunity to visit numerous operations worldwide. Johan was instrumental in the development of the mXrap software and many of the software routines and apps available in that platform. In 2019, Johan was appointed director of the ACG.

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