Practical Rock Mechanics for Metalliferous Underground and Open Pit Mining & Managing Seismic Risk in Underground Hard Rock Mines Online Courses

3–7 August 2020 AWST | Online | Perth, Western Australia

Practical Rock Mechanics for Metalliferous Underground and Open Pit Mining Online Course

Monday 3 – Wednesday 5 August 2020

This online course is designed to develop specific open pit and underground metalliferous mining geomechanics competencies for mine geologists and engineers to enhance their contribution to mine site geomechanics programs. The course could be of particular benefit to geomechanics personnel with limited practical experience and is applicable to both underground and open pit mining workers.

Course topics include:
- Intact rock strength
- Discontinuities
- Rock mass classification
- Core logging and geotechnical mapping
- Stress measurements
- Rock mass failure criteria
- Data collection strategy
- Underground geomechanics mine design
- Open pit geomechanics design
- Numerical modelling
- Monitoring underground mines
- Monitoring open pit mines

Course Facilitators:
- Associate Professor Johan Wesseloo
  Director
  Australian Centre for Geomechanics
- Professor Phil Dight
  Professor of Geotechnical Engineering
  Australian Centre for Geomechanics
- Professor Yves Potvin
  Professor of Mining Geomechanics
  Australian Centre for Geomechanics

Managing Seismic Risk in Underground Hard Rock Mines Online Course

Thursday 6 – Friday 7 August 2020

Hard rock mines in deep and high stress environments often require the use of seismic systems to enable operators to manage seismic risk posed to the workforce, the mining investment and the environment. Seismic data is also used in assessing the rock mass response to mining activities where source parameters are used in the interpretation of rock mass failure mechanisms, the calibration of numerical modelling, and the interpretation of failure mechanics of the rock mass.

This online course is designed to introduce mine geotechnical engineers to basic mine seismology concepts and their application in mining. Geotechnical engineers who work on medium to high risk seismic mines would benefit most from this course.

Course topics include:
- Seismic risk management process
- Data collection
- Seismic response to mining
- Control measures
- Seismic risk assessment

Course Facilitators:
- Dr Daniel Cumming-Potvin
  Project Lead — mXrap Development
  Australian Centre for Geomechanics
- Associate Professor Johan Wesseloo
  Director
  Australian Centre for Geomechanics

View programmes overleaf

www.acg.uwa.edu.au/events
Day 1
Monday 3 August 2020

PRACTICAL ROCK MECHANICS FOR METALLIFEROUS UNDERGROUND AND OPEN PIT MINING ONLINE COURSE PROGRAMME*

08:00 REGISTRATION
08:20 Welcome and introduction Associate Professor Johan Wesseloo, Australian Centre for Geomechanics
08:30 Intact rock strength Associate Professor Johan Wesseloo
09:15 Discontinuities Denisha Sewnun, Australian Centre for Geomechanics
10:30 MORNING BREAK
11:00 Core logging and geotechnical mapping Denisha Sewnun
11:45 Rock mass classification Denisha Sewnun
12:30 LUNCH
13:30 Stereonets Dr Daniel Cumming-Potvin, Australian Centre for Geomechanics
14:30 AFTERNOON BREAK
15:00 Structural geology for geotechnical engineers Professor Phil Dight, Australian Centre for Geomechanics
16:30 Questions and discussion
16:45 DAY ONE CLOSE

Short Course Format:
Due to current COVID-19 related travel restrictions, the physical venue for this event, UWA's eZone Building, Fairway Entrance 3, Nedlands WA, will only be open to Western Australian attendees. For attendees outside of Western Australia, this event will be available via live streaming.

*Note that this event will not be available on demand, post-event. Times quoted are in AWST (UTC +8 hours)

Day 2
Tuesday 4 August 2020

PRACTICAL ROCK MECHANICS FOR METALLIFEROUS UNDERGROUND AND OPEN PIT MINING ONLINE COURSE PROGRAMME*

08:30 Rock mass failure criteria Associate Professor Johan Wesseloo
09:30 Stress measurements (1) Professor Phil Dight
10:30 MORNING BREAK
11:00 Stress measurements (2) Professor Phil Dight
12:00 LUNCH
13:00 Data collection strategy Professor Yves Potvin, Australian Centre for Geomechanics
13:45 AFTERNOON BREAK
14:15 Numerical modelling overview Associate Professor Johan Wesseloo
15:45 DAY TWO CLOSE

Day 3
Wednesday 5 August 2020

PRACTICAL ROCK MECHANICS FOR METALLIFEROUS UNDERGROUND AND OPEN PIT MINING ONLINE COURSE PROGRAMME*

08:30 Open pit geomechanics design (1) Professor Phil Dight
10:00 MORNING BREAK
10:30 Open pit geomechanics design (2) Professor Phil Dight
11:30 Underground geomechanics mine design (1) Professor Yves Potvin
12:00 LUNCH
13:00 Underground geomechanics mine design (2) Professor Yves Potvin
15:00 AFTERNOON BREAK
15:30 Monitoring underground mines Dr Daniel Cumming-Potvin
16:30 Monitoring open pit mines Professor Phil Dight
17:30 ONLINE COURSE END

Sponsorship opportunities are available.
Please email josephine.ruddle@uwa.edu.au for further information.

SECOND INTERNATIONAL CONFERENCE ON UNDERGROUND MINING TECHNOLOGY ONLINE EVENT
3-5 November 2020
View list of accepted abstracts at www.acgugminetech.com
Day 4
Thursday 6 August 2020

MANAGING SEISMIC RISK IN UNDERGROUND HARD ROCK MINES
ONLINE COURSE PROGRAMME*

08:00  REGISTRATION

08:20  Welcome and introduction  Associate Professor Johan Wesseloo,
Australian Centre for Geomechanics

08:30  The seismic risk management process  Associate Professor Johan
Wesseloo

09:30  Historical cases  Gerhard Morkel, IGM Geotechnical

10:30  MORNING BREAK

11:00  Rockburst and seismicity concepts  Associate Professor Johan
Wesseloo

11:30  Introduction to seismology – waves  Associate Professor Johan
Wesseloo

12:30  LUNCH

13:30  Introduction to seismology – source parameters  Associate
Professor Johan Wesseloo

14:30  Seismic data collection  Dr Daniel Cumming-Potvin, Australian
Centre for Geomechanics

15:30  AFTERNOON BREAK

16:00  Seismic data quality  Gerhard Morkel!

17:00  DAY FOUR CLOSE

*Programme correct as at May 2020, subject to change. All times in AWST (UTC + 8 hours)

Day 5
Friday 7 August 2020

MANAGING SEISMIC RISK IN UNDERGROUND HARD ROCK MINES
ONLINE COURSE PROGRAMME*

08:30  Characterisation of sources  Dr Kyle Woodward, Australian Centre
for Geomechanics

09:15  Seismic hazard assessment  Stuart Tierney, Australian Centre for
Geomechanics

10:15  MORNING BREAK

10:45  Numerical modelling  Associate Professor Johan Wesseloo

11:30  Short term response  Dr Kyle Woodward

12:30  LUNCH

13:30  Exposure control  Stuart Tierney, Australian Centre for
Geomechanics

14:15  Rockburst data collection  Dr Daniel Cumming-Potvin

15:00  AFTERNOON BREAK

15:30  Ground support  Dr Daniel Cumming-Potvin

16:15  Mine design  Stuart Tierney

17:00  COURSE CLOSE

TO ORDER THESE AND OTHER TRAINING DVDs, PLEASE VISIT
acg.uwa.edu.au/shop/

Training DVDs

Reading the Ground
A Geotechnical Hazard Awareness Training DVD for Underground Metalliferous Mine Workers

Rockburst
Unleashing Earth’s Energy A Geotechnical Hazard Awareness Training DVD for Underground Metalliferous Mine Workers

Securing the Ground
A Geotechnical Hazard Awareness Training DVD for Underground Mine Workers

Underground Drilling and Blasting
Best Practices for Drilling and Blasting - A Safety Training DVD for Underground Metalliferous Mine Workers

www.acg.uwa.edu.au/events
## CONTACT DETAILS
Online registrations at [acg.uwa.edu.au/register/](acg.uwa.edu.au/register/)

Please print. *denotes mandatory fields.

*Title (Mr, Mrs, Miss, Ms, Dr, Prof., other) ________________________________

*Family Name ______________________________________________________

*First Name _________________________________________________________

Preferred Name ______________________________________________________

*Position __________________________________________________________

*Organisation _________________________________________________________

Mine/Dept ___________________________________________________________

*Address ___________________________________________________________

____________________________________________________________________

Phone ______________________________________________________________

Fax _________________________________________________________________

Mobile ______________________________________________________________

*Email ______________________________________________________________

*All confirmations/event updates will be sent via email

Registrants contact details are intended to be published in the events authorised
attendee list made available to event attendees and sponsors, who may contact you,
including electronically.

☑ I give permission for my details to be included in the event attendee list.

☑ I give permission for the ACG to send me ACG research, training and/or
education information advice, including electronic communications.

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## PAYMENT

**Total payment AUD ____________________________**

Payment to be received by 31 July 2020. All bank fees are the
responsibility of the registrant. ABN 37 882 817 280

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## PAYMENT OPTIONS

[ ] Credit Card

Register online at [https://acg.uwa.edu.au/register/](https://acg.uwa.edu.au/register/). Alternatively, please phone us on +61 8 6488 3300 to make payment (Visa and Mastercard are the only cards we accept).

[ ] Electronic Funds Transfer (EFT)

Please return this completed form to [info-acg@uwa.edu.au](mailto:info-acg@uwa.edu.au) and the ACG will send you an invoice with EFT details included.

PO# (if required) ____________________________

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## Practical Rock Mechanics for Metalliferous Underground and Open Pit Mining & Managing Seismic Risk in Underground Hard Rock Mines Online Courses

### 3–7 August 2020, Australian Western Standard Time

#### Practical Rock Mechanics for Mining Online Course (2050)

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#### Managing Seismic Risk in Underground Mines Online Course (2060)

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You can choose to attend either online course, or attend both
at a discounted rate:

### Practical Rock Mechanics Online Course (2050) AND Managing Seismic Risk Online Course (2060)

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## DELEGATE CANCELLATIONS

Up to 8 days before event(s) commencement: an administration fee of AUD 150
will be charged. 7 or less days before: no refund. Non-attendance: no refund.
Substitutions will be accepted at any time. The ACG reserves the right to cancel
the online courses if insufficient registrations are received.

† Please visit [www.acg.uwa.edu.au/corp_affiliates](http://www.acg.uwa.edu.au/corp_affiliates) to view the list of
ACG Corporate Affiliates.

^ Students are required to provide proof of full-time enrolment at time of
registration.

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The ACG Ground Support for underground mines book is available for purchase at

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How to register:

Australian Centre for Geomechanics
The University of Western Australia
35 Stirling Highway (M600)
 Crawley WA 6009

+61 8 6488 3300 info-acg@uwa.edu.au www.acg.uwa.edu.au