

REGISTRATION FORM

AN INTENSIVE
SHORT COURSE
IN...

Bulk Solids Handling

*Storage, Feeding, Transfer,
Belt Conveying*

Title:

First Name:

Surname:

Position:

Organisation:

Address:

Postcode:

Telephone:

Email:

PAYMENT OPTIONS:

Credit Card ☐ Visa ☐ Mastercard

For credit card payments please email Danielle.Harris@newcastle.edu.au to obtain a link to an online payment portal (please note we do not accept AMEX).

☐ Purchase Order

This registration form should be forwarded to:
TUNRA Bulk Solids
Newcastle Institute for Energy and Resources,
The University of Newcastle, Callaghan NSW 2308, Australia
Tel: +61 2 4033 9055
Email: danielle.harris@newcastle.edu.au

GENERAL INFORMATION

FEES

Early Bird Delegate Registration: \$2250+ GST
(Before 19 January 2024)
Delegate Registration: \$2650 + GST
5 or more delegates receive a 10% discount.
All fees are in Australian Dollars and must be paid
prior to the event. Fees include electronic program
notes.

VENUE

Online via Zoom Webinar

SESSION SCHEDULE

The online course is run over 5 half days.

CANCELLATIONS

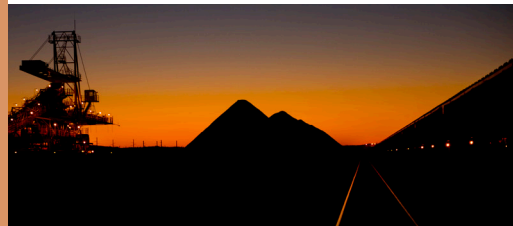
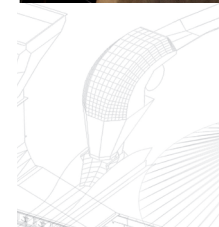
If you are unable to attend the event a substitute
delegate is welcomed at no extra charge. If
notification of withdrawal is received no less than
14 days prior to the event, 80% of the fee will be
refunded. No refunds will be made if notification of
cancellation is received less than 13 days prior to
the date of the event. The organisers reserve the
right to alter or cancel the course due to unforeseen
circumstances. In the event of cancellation, a full
refund of fees will be made.



Bulk Solids Handling

Storage, Feeding, Transfer,
Belt Conveying

Online Course
19th - 23rd
February 2024



Presented online
using Zoom Webinar

OVERVIEW

The storage, handling and transportation of bulk solid materials are major activities for a vast number and variety of industries throughout the world. These range from the gentle handling of very small quantities of material in the pharmaceutical and chemical industries to the vast quantities handled and processed by the mining and mineral companies. This diversity is particularly evident in Australia where the wide-ranging nature and scale of operations is somewhat unique.

Considerable advances continue to be made in research, development, application and implementation of the technologies associated with various aspects of bulk solids handling. This course will be of particular interest to a wide range of industries including:

- Mining and mineral production and processing
- Power generation
- Energy and environment
- Chemical and petrochemical process industries
- Agriculture processing and production
- Manufacturing
- Pharmaceuticals
- Food industry

TUNRA Bulk Solids are world leaders in applied and fundamental bulk solids handling research and have been in business for more than 40 years. TUNRA has built a strong reputation in industry for its professional services and world class research in materials handling and flow properties. TUNRA have completed more than 4,000 projects for over 1,000 companies across Australia and more than 40 countries internationally.

Comprehensive laboratory test facilities are available at TUNRA to aid research and consulting activities at the University of Newcastle. TUNRA is committed to forming long term partnerships with business to help them overcome existing handling problems and assist with planning projects to ensure trouble-free plant operation.

The Centre for Bulk Solids and Particulate Technologies (CBSPT) is actively involved in both fundamental and applied research on a range of problems associated with bulk solids and particulate technology. Research areas include storage, flow, processing and transportation of bulk solids.

It was established in 1995 and supported by the Australian Research Council (ARC) as one of a prestigious handful of national Key Centres of Teaching and Research between the University of Newcastle and the University of Wollongong. The Centre's Newcastle Node is strongly linked with TUNRA Bulk Solids and the Faculty of Engineering & Built Environment at the University of Newcastle.

THE CENTRE FOR BULK SOLIDS

5-DAY COURSE OUTLINE

FLOW PROPERTIES TESTING

- Description of test equipment and procedures
- Influence of storage time and environmental factors such as temperature and moisture
- Evaluation of hopper and chute lining materials for friction and wear
- Application specific testing (inc. Dust and TML)
- Analysis and application

MASS FLOW & FUNNEL FLOW

- Mass-flow and funnel-flow design procedures
- Basic hopper geometry
- Interpretation of flow property reports in relation to bin design
- Case studies
- Dynamic modelling of bulk solids systems

STOCKPILE DESIGN

- Influence of flow properties and geometry on draw-down and live capacity
- Selection and positioning of hoppers and feeders for optimising gravity reclaim
- Stockpile base pressures and loads on reclaim tunnels, hoppers and feeders

D.E.M. ANALYSIS

- Introduction to the Discrete Element Method
- Modelling approaches and limitations
- Overview of critical model parameters including particle size and shape
- Considerations and best practices for industrial application

WALL LOADS

- Application of AS3774 for static and flow load cases
- Gate Loads
- Symmetric versus Eccentric Discharge
- Silo Quaking and Shock Loads
- Loads on Buried Structural Elements

FEEDERS

- Importance of hopper and feeder interfacing
- Review of basic feeder types
- Determination of optimum hopper and feeder interfacing for uniform draw-down
- Determination of feeder loads, torque and power for initial and running conditions
- Controlling feeder loads and start-up torque

TRANSFER CHUTES

- Basic principles of chute design
- Application of flow properties in the design process
- Chute flow problems due to adhesion and wear
- Dynamic modelling of hood and spoon for optimum accelerated flow
- Optimising chute profiles for feeding and transfer
- Optimising chute geometry for controlled wear in the flow zone and at the belt feed point
- Dust control in transfer chutes
- Application of DEM and CFD in chute design and performance evaluation

BELT CONVEYING

- Overview of open and closed systems. Special belt conveyors and conveyor selection recommendations
- Review of basic design procedures
- Economic and technical considerations in optimising conveyor design
- Analysis of main resistances – idler indentation, idler spacing, bearings and seals, stress states in bulk solids and contribution to drag.
- Specialised testing

5-DAY COURSE INFORMATION

WHY ATTEND THIS COURSE

- Diversify your expertise and further knowledge of materials handling concepts
- Professional Development (CPD hours)
- Increase awareness of material phenomena occurring on site
- Learn methods for troubleshooting, optimisation and best practice design
- Develop skills in fundamental and numerical analysis approaches
- Learn how to apply flow properties test results to benefit your operation or designs
- Stay up to date with the latest developments in industry and bulk solids research

COURSE PRESENTERS

Emeritus Professor Alan Roberts founded TUNRA Bulk Solids in 1975 to facilitate research and consulting services in bulk materials handling. Following Alan's long standing commitment to the bulk handling industry, he developed, guided and led a team of experts at TUNRA Bulk Solid who continue to be at the forefront of the materials handling industry. Following in Alan's footsteps, TUNRA continues to offer professional training courses to industry as a part of our commitment to continuous improvement of the materials handling field. These training courses are run by a minimum of 3 experts from our engineering group who are specialists in their fields.

FURTHER INFORMATION

Should you require any further information regarding the course, please contact:
TUNRA Bulk Solids
The University of Newcastle
Callaghan NSW 2308, Australia

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www.bulksolids.com.au



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AUSTRALIA

