REGISTRATION FORM

AN INTENSIVE SHORT COURSE IN...

Belt Conveying Design, Optimisation & Research

Title: .....

First Name: .....

Surname: .....

Position: .....

Organisation: .....

Address: .....

.....

Telephone: .....

Email: .....

Dietary Requirement: .....

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: $3,250+ GST
(Before 27 September 2025)
Delegate Registration: $3,750 + 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, lunches and refreshments.

VENUE

TUNRA Bulk Solids
NIER Site, A Block, level 5
70 Vale St, Shortland NSW 2307
+61 2 4033 9039

SESSION SCHEDULE

3 1/2 Day Course
8:30 am - 5:00 pm 27th October
9:00 am - 5:00 pm 28th October
9:00 am - 5:00 pm 29th October
9:00 am - 1:00 pm 30th October

Please note, starting and finishing times are subject to change.

CANCELLATIONS

All face-to-face courses are subject to current COVID government regulations. 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.

UNIVERSITY OF NEWCASTLE AUSTRALIA

TUNRA BULK SOLIDS
CELEBRATING 50 YEARS

Belt Conveying Design, Optimisation & Research

3 1/2 Day Course 27th - 30th October 2025

Presented at

TUNRA Bulk Solids
Newcastle N.S.W.

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 large 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 specialised course provides a comprehensive understanding of conveyor system design, operation, and maintenance. Covering industry best practices, technical considerations, and troubleshooting strategies, this course is ideal for engineers, technicians, and industry professionals looking to enhance their expertise in conveyor systems.

ABOUT TUNRA BULK SOLIDS

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 which are ISO 9001, ISO45001 and ISO14001 certified, are available at TUNRA to aid research and consulting activities at the University of Newcastle. TUNRA is committed to forming long term partnerships with businesses to help them overcome existing handling problems and assist with planning projects to ensure trouble-free plant operation.

THE CENTRE FOR BULK SOLIDS

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.

UNIVERSITY OF NEWCASTLE AUSTRALIA

TUNRA BULK SOLIDS CELEBRATING 50 YEARS

COURSE OUTLINE

SPECIALISED CONVEYING SYSTEMS

- Overview of open and closed conveyor systems
- Special belt conveyors and selection recommendations
- Introduction to underground conveying systems
- FRAS (Fire-Resistant Anti-Static) testing requirements

MATERIAL PROPERTY TESTING

- Description of test equipment and procedures used to determine key material properties
- Influence of environmental factors such as moisture
- Test methods for the evaluation of friction and wear
- Analysis and applications

CONVEYOR LAYOUT AND DESIGN CONSIDERATIONS

- Key design factors in conveyor layouts
- Vertical curves, transition, turnovers and take-ups
- Travelling tripper functionality and applications

STATIC DESIGN

- Review of static design procedures in line with International Standards
- Understanding and optimising conveyor performance
- Analysis of key resistances affecting efficiency:
  - » Idler indentation, idler spacing, bearings, and seals
  - » Stress states in bulk solids and their impact on system drag

COMPONENT DESIGN

- Belt Selection and Performance
  - » Selecting the right belt: steel/fabric and solid woven
  - » Splicing methods
  - » Cover selection (grade and thickness)
- Idler and Pulley Considerations
  - » Idler selection: material, diameters, and sealing arrangements
  - » Pulley diameter considerations: driven, non-driven, high-tension bend, and uneven wear
- Drive System Design & Enhancements
  - » Drive traction, slip control, drive types, and lagging considerations
- Additional Components for System Efficiency
  - » Skirts, cleaners, scrapers, and online monitoring systems
  - » Brakes, flywheels, and their role in system reliability

CONVEYOR DYNAMICS AND SYSTEM PERFORMANCE

- Overview of conveyor system dynamics and performance factors
- Belt design package training and software tools
- Troubleshooting common dynamic issues
- Power demand, sag requirements, and take-up selection/ movement
- Blocked chutes and flooded belt scenarios
- Starting and stopping profiles for efficiency

TRANSFER CHUTES AND FEEDERS

- Trajectory calculation and loading efficiency
- Considerations for material discharge points
- DEM (Discrete Element Method) calibration and material testing
- Types of feeders and their applications in material handling

TROUBLESHOOTING, MAINTENANCE & RESEARCH DEVELOPMENTS

- Identifying and resolving common conveyor issues
- Best practices for system maintenance and reliability improvement
- Current research priorities in belt conveying

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
- 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 Solids 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:

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The University of Newcastle
Callaghan NSW 2308, Australia

Tel: +61 2 4033 9039
Email: danielle.harris@newcastle.edu.au
www.bulksolids.com.au

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