The course is offered for those who are familiar with pavement design, or who have completed any of the CPEE two-day Flexible Pavement Design courses, and/or one-day Mechanistic Pavement Design (CIRCLY).

Heavy Industrial Pavement Design (HIPAVE) is for the mechanistic analysis and design of flexible pavements subjected to the extremely heavy wheel loads associated with freight handling vehicles in industrial facilities, particularly intermodal container terminals. It is designed to conveniently model each combination of vehicle model and container load and to combine the damage using the Cumulative Damage Factor concept. HIPAVE 5.0 draws on the proven technology of earlier versions of CIRCLY software (used on thousands of pavement designs over 20 years) and APSDS (Airport Pavement Structural Design System).

topics

- **Overview of HIPAVE Capabilities**
  - Automation of Vehicle Loads
  - Automation of Payload Distributions
  - Parametric and Economic Analysis
- **Overview of HIPAVE Capabilities (Cont.)**
  - Lateral Vehicle Wander
  - Dynamic Load Factors
- **Hands on Exercises**
- **Case Studies**
  - Crawford Street intermodal container terminal (Hamilton, New Zealand)

presenters

**Leigh Wardle, Mincad Systems Pty Ltd - Course Primary Presenter**

Leigh developed CIRCLY, the Windows-based package that can analyse a range of load types acting on layered elastic systems. Leigh joined CSIRO Division of Geomechanics in 1970 after qualifying in Applied Mathematics & Physics from Monash University. Over the 18 years of his career with CSIRO he worked on numerical stress analysis techniques. In 1988 Leigh formed Mincad Systems, a company specialising in numerical stress analysis for the civil and mining industries and since 1993 has specialised in pavement applications. Leigh is the developer of CIRCLY, APSDS (Airport Pavement Structural Design System) and HIPAVE for Heavy Industrial Pavements such as intermodal container terminal pavement Design. In 2018, version 7.0 of CIRCLY was released.

**Ken McNabb, Mincad Systems Pty Ltd**

Ken is experienced in a range of numerical modelling packages in the field of geomechanics and geotechnical engineering.

The following Austroads Guide is used as the key reference.

Guide to Pavement Technology
Part 2: Pavement Structural Design

Investment:
$765 early bird
$850 regular
Incl. GST, all catering (Lunch, M/A Teas) & Notes

Heavy Duty Pavement Design - Container Terminals (HIPAVE)

As at June 2019
who should attend

- State road agency and local government engineers and managers with responsibilities in the provision, approval, design, construction or maintenance of concrete roads & pavements. This to also include project managers and senior supervisors.
- Consulting engineers with involvement in road and/or pavement projects.
- Road & Pavement construction contractors, engineers, project managers and supervisors.
- Local Government engineers, project managers and senior supervisors.
- Technical operatives and Engineering graduates and “cadets” looking for specialist knowledge for career development.

CPEE professional development (CPD)

This course, with content based on the relevant CPEE postgraduate distance learning study Unit, is facilitated and delivered by recognised practitioners in the field and is of such technical content that the number of hours involved should be fully acceptable toward Continuing Professional Development (CPD) standing.

organiser & endorsements

Centre for Pavement Engineering and Education (CPEE): This course is presented by CPEE, a non-profit, specialist higher education private provider (roads, pavements & infrastructure asset management), founded by AUSTROADS and the Australian Asphalt Pavement Association (AAPA). CPEE offers Graduate Certificate, Bachelor of Engineering (Honours) and Master of Technology qualifications in roads, pavement engineering and infrastructure asset management, and has formal links to the University of Tasmania.

course size, enquiries & management

Due to its practical nature, numbers are limited for this course so it is advisable that you register quickly to avoid missing out. Its unique and targeted content means this course is unlikely to be offered again in this location for some time.

CPEE is supported by

**Austroads:** Austroads is the peak organisation of Australasian road transport traffic agencies. Austroads members are the Australian state and territory road transport and traffic authorities, the Department for Infrastructure, Transport, Regional Development and Local Government, the Australian Local Government Association (ALGA), and the New Zealand Transport Agency. Austroads members are collectively responsible for the management of over 900,000 kilometres of roads valued at more than $250 billion representing the single largest community asset in Australia and New Zealand.

**IPWEA:** The Institute of Public Works Engineering Australia is a professional organisation providing member services and advocacy for those involved in and delivering public works and engineering services to the community. Previously known as the Institute of Municipal Engineering Australia (IMEA), the organisation has expanded its traditional local government engineering focus to public works and thereby covering all levels of government and private practice.

**Pavement Recycling and Stabilisation Association (AustStab):** The Australian Stabilisation Industry Association is a national organisation set up to educate and inform the civil engineering industry of the environmental and economic advantages of road recycling and all types of stabilisation. Its members are contractors, binder suppliers, government road authorities and plant manufacturers.

**Roads Australia:** Roads Australia is a not-for-profit, non-political industry association. Members are drawn from all corners of the Australian road sector, and we champion the interests of a vital national asset - Australia’s road transport system - and provide a forum for policy development, networking and communication. Further, we seek to draw attention to the importance of Australia’s road network to the economic and social fabric of the nation, and to ensure that information and decision-making in relation to roads and road transport is well informed and reflects an appropriate level of priorities.

**Australian Society for Concrete Pavements (ASCP):** The Australian Society for Concrete Pavements (ASCP) was formed in October 2007 to facilitate improvements in the design, construction & quality of concrete pavements in Australia through education, information and technology transfer, and research. Members enjoy many benefits including access to ‘member only’ areas of the ASCP web site, as well as discount on seminar and conference fee.

**SRA:** State Road Agencies are responsible for the management of the road network, which includes planning, designing, construction and maintaining road use through registering vehicles, licensing drivers and traffic management, and providing information and other road user services. The SRA also provides quality assured integrated investigation, testing and design services in the pavement technology and geotechnical engineering disciplines, and provides support to CPEE in developing expertise and undertaking education in all aspects of the flexible pavements industry.

Cancellation Policy:

- Cancellations made 10 working days or more prior to the events start date: Full refund.
- Cancellations within 9-5 working days of the event start date: 50% refund.
- Cancellations less than 5 working days of the events start date or after the event has started: No refund.

If you are unable to attend this event a substitute attendee may take your place, without penalty. CPEE reserves the right to cancel or reschedule any course, whereby a full refund or course transfer will be provided.