An intensive two day short course ideal for engineers and engineering technologists working for federal, state, or local authorities, consultants and contractors. This course is ideal for those involved in the design and construction of roads and pavements where heavier traffic and loads may be encountered.

2013 Course Overview ($1,265 – 2 days) ....ASCP Members $1,089

Intended to inform on the principles & practices involved in concrete pavement design, the course program will closely follow the content in the appropriate Chapters of the Austroads Guide to Pavement Technology - Part 2: Pavement Structural Design and Part 4C: Materials for the Concrete Pavements, which are used as the principal references.

The materials content will however cover more information than is in the current Guide, as the selection of materials is critical to producing a road/pavement design that will deliver both structural and functional performance. Appropriate joint types and their design are key elements and will be discussed in detail. The important construction aspects will also be elaborated on.

Topics Covered

- Pavement Design Systems
- Construction & Maintenance Considerations
- Road Environment
- Subgrade Evaluation
- Materials
- Design Traffic and Case Study
- Structural Thickness & Pavement Design
- Jointing & Reinforcement
- Construction Aspects
- Finishing
- Worked Examples
- Design Exercise and Workshop

This Course is for intensive uptake of primary knowledge on the topic and will provide an ideal base preparation for those intending to study the CPEE Distance Learning Unit “CPE610 Rigid Pavement Construction” which is part of the CPEE post graduate distance education programs specialising in Road & Pavement Engineering.

Guide to Pavement Technology
Part 2: Pavement Structural Design
Part 4C: Materials for Concrete Pavements

Course supported by:
The Presenters

John Hodgkinson, Consultant  Course Core Presenter

John is a pavement engineer with extensive experience in rigid construction as well as having been involved in developing and presenting special courses for concrete pavement construction. John’s recent consulting activities include developing concrete pavement design catalogues, presenting technical training courses in support of Malaysian MY10 Plan, developing reporting systems and on site work methods and practices for rapid replacement of concrete pavement slabs and as specialist advisor, concrete pavement design and construction cost estimation, NZ’s largest road contract. John is also the National Training Manager Grey Card course, for the Australian Society for Concrete Pavements (ASCP).

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 this site, as well as discount on seminar and conference fees. Most importantly, they are kept up to date with industry news, events and publications.

Department of Transport & Main Roads (TMR)

State Road Authorities 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.

Who Should Attend?

- State road authority and local government engineers with responsibilities in the provision, approval, design and maintenance of flexible road pavements. This also include project managers and senior supervisors.
- Consulting engineers with involvement in road projects.
- Road construction contractors, engineers, project managers and supervisors.
- Local Government engineers, project managers and senior supervisors.
- 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

CPEE: This course is presented by the Centre for Pavement Engineering and Education a non-profit, specialist private provider (roads and pavements) of tertiary education, founded by AUSTROADS and the Australian Asphalt Pavement Association (AAPA). CPEE offers Graduate Certificate, Graduate Diploma, Master of Technology and Master of Engineering qualifications in roads, pavement engineering and infrastructure asset management, and has formal links to La Trobe University, the University of Tasmania & the Chifley Business School.
## DAY 1

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topics</th>
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<tbody>
<tr>
<td>8.30</td>
<td>Setting the Scene</td>
<td>Welcome and Official Introductions</td>
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</tbody>
</table>
| 9.10   | Pavement Design Systems-Unbound Pavements                              | • Terminology and Definitions used in Pavement Design  
• Hierarchy of pavement design documents  
• Pavement design inputs and outputs  
• Types of pavements  
• Brief description of design philosophy used for concrete pavement types |
| 9.50   | Construction and Maintenance Considerations                            | • Availability of materials  
• Traffic and environment considerations  
• Construction under traffic  
• Drainage and subgrade improvement  
• Pavement layering considerations  
• Special treatments  
• Long term maintenance considerations  
• Limitations of road surfacings |
| 10.20  | Morning Tea Break                                                      |                                                                                                                                             |
| 10.40  | Construction & Maintenance Considerations (cont) & Road Environment     | • Austroads Pavement Design Guide  
• Moisture Environment – prevention of moisture entering the pavement  
• Removing moisture from the pavement  
• Assigning a CBR strength  
• Lime stabilisation  
• Expansive subgrade materials and use of capping layers  
• Presumptive CBR values for subgrade soil types  
• Worked examples of how to determine a design CBR from a set of laboratory and in situ CBR tests |
| 11.40  | Subgrade Evaluation                                                    | • Methods of subgrade evaluation  
• Laboratory Tests particularly CBR, %Swell, Atterberg limits and permeability.  
• Insitu CBR tests (DCP and CPT)  
• Relationship between CBR, Density and Moisture  
• Assessment of Laboratory and in situ CBR Test Results  
• Average annual traffic total (AADT), direction factor, lane distribution factor and cumulative traffic growth factor  
• Calculation of Design Traffic in ESA for unbound flexible pavements  
• Estimating or calculation of Design Traffic for Light Duty Pavements |
| 12.30  | Lunch                                                                   |                                                                                                                                             |
| 1.15   | Workshop Exercise - Subgrade                                            | • Determine sub-grade CBR from a set of DCP and Laboratory Test Results  
• Unbound pavement materials and test properties  
• Laboratory tests for of unbound materials |
| 1.45   | Unbound Pavement Materials                                              |                                                                                                                                             |
| 2.15   | Design Traffic – #1                                                    | • Various axle configurations and concept of Equivalent Standard Axles (ESAs)  
• Description of heavy vehicle classes and determination of the average number of heavy vehicle axle groups per heavy vehicle  
• Average annual traffic total (AADT), direction factor, lane distribution factor and cumulative traffic growth factor  
• Calculation of Design Traffic in ESA for unbound flexible pavements  
• Estimating or calculation of Design Traffic for Light Duty Pavements |
| 3.20   | Afternoon Tea Break                                                    |                                                                                                                                             |
| 3.35   | Workshop Exercise – Traffic (Unbound Pavements)                        | • Calculation of the number of heavy vehicle axle groups over the design period  
• Calculation of Design Traffic in ESAs |
| 4.00   |                                                                           |                                                                                                                                             |
| 5.00   | Close                                                                  |                                                                                                                                             |

## DAY 2

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Topics</th>
</tr>
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</table>
| 8.30   | Jointing and Reinforcement                                              | • Jointing and reinforcement fundamentals  
• Transverse contraction joints Calculation of Design Traffic  
• Dowel and tie bar design  
• Longitudinal joints widened truck lanes |
| 9.50   |                                                                           |                                                                                                                                             |
| 10.15  | Morning Tea Break                                                      |                                                                                                                                             |
| 10.30  | Construction Aspects                                                   | • Construction, expansion, isolation joints  
• Environmental effects on rigid pavements  
• Reinforced pavements, jointed, continuously reinforced  
• Developing joint layouts.  
• Joint sealants  
• Surface texture design  
• Construction, the link between design and construction  
• Construction best practice |
| 10.50  |                                                                           |                                                                                                                                             |
| 12.15  | Lunch                                                                   |                                                                                                                                             |
| 1.00   | Finishing and Overview                                                  | • Workshop on the Design of Concrete Pavements  
• Workshop exercise for design of concrete pavements  
• Review of key elements in concrete pavement design  
• Course summary discussion and close |
| 2.45   | Afternoon Tea Break                                                    |                                                                                                                                             |
| 3.00   |                                                                           |                                                                                                                                             |
| 4.10   |                                                                           |                                                                                                                                             |
| 5.00   | Close                                                                  |                                                                                                                                             |
- Understanding Road Construction - Materials & Practices
- Surface Treatments - Understanding & Assessing Options
- Maintenance & Rehabilitation - Understanding & Evaluating Options
- Maintenance & Rehabilitation WORKSHOP - from Theory to Practice (one day)
- Flexible Pavement Design - Principles & Practices
- Mechanistic Pavement Design - CIRCLR
- Flexible Pavement Design - Advanced
- CIRCLR Pavement Design in Practice - a practical hands on WORKSHOP (one day)
- Concrete Pavement Design & Construction
- Pavement Recycling & In situ Stabilisation
- Road & Public Space Lighting Workshop (three day)
- Pavement Management
- Road Sector Construction Contract Law
- Dispute Resolution & Construction Claims - in the roads sector

This course is supported by

Austroads: Austroads is the Association of Australian and New Zealand road transport and traffic authorities. Austroads members are the six Australian state and two 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 Authority.

Chifley Business School: Chifley Business School (CBS) is one of the longest-standing independent higher education institutions and Registered Training Organisations (RTO) in Australia providing business management training across Australia and internationally - from short courses to nationally accredited certificate and diploma and postgraduate programs including specialist graduate certificates.

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 this site, as well as discount on seminar and conference fees. Most importantly, they are kept up to date with industry news, events and publications.

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.

The Institute of Public Works Engineering Australia (IPWEA): 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.

SRA: State Road Authorities 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.

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.

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Scourse_enrolments@chifley.edu.au
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Fax: +613 95143888
www.chifley.edu.au

Cancellation Policy: If you are unable to attend this event a substitute attendee may take your place, without penalty. However, if you wish to cancel your registration, a refund, minus a $125 (inc GST) service fee, will be given provided you have notified us in writing, at least 10 days before the start of the event. No refund is available for cancellations under 10 days. See Registration Form for full details.
CPEE SHORT COURSE ENROLMENT FORM

PERSONAL DETAILS

Title* □ Dr □ Mr □ Mrs □ Miss □ Ms □ Other
First Name* ..........................................................................................................................
Surname* ..........................................................................................................................
Position/Title* ......................................................................................................................
Organisation* ....................................................................................................................... Day Telephone* (  ) ..................................................................
E-mail* ............................................................................................................................... Special Dietary Requirements

PREFERRED CORRESPONDENCE ADDRESS*

Is this address □ Home or □ Work / Business
Address ................................................................................................................................ State ..................................... Postcode ............................................
Suburb .................................................................................................................................

COURSE TITLE CITY DATE FEE* | AU$
Flexible Pavement Design - Principle & Practices—2 days
Mechanistic Pavement Design CIRCLY—1 day
Flexible Pavement Design - Advanced—2 days (including CIRCLY Workshop)
CIRCLY Pavement Design in Practice - a hands on Workshop—1 day
Concrete Pavement Design & Construction—2 days
- For current ASCP Individual Members only

PAYMENTS, CANCELLATIONS AND REFUND POLICY

Payment Payment of course fees must be made upon enrolment into the course to secure a placement. Payment can be made by credit card, cheque payable to Chifley Business School Pty Ltd, authorised purchase orders or EFT.
Withdrawal/ Cancellation If you are unable to attend an event, a substitute attendee may take your place without penalty. If you wish to cancel your registration a refund, minus a $125 (inc GST) service fee will be provided via cheque or EFT upon your written notification 10 working days prior to the program commencement. A refund is not available for cancellations under 10 days.
Course Cancellations Chifley Business School/CPEE reserve the right to cancel any course. In the event of a course cancellation by Chifley Business School/CPEE, a full refund is offered to all registered participants. Alternatively you can transfer the amount paid to another course of your choice. If you wish a refund this will need to be requested in writing to scourse_enrolment@chifley.edu.au.

PAYMENT*

Please choose a payment option that suits you. To ensure your place, payment must accompany this form. Payment details or Purchase Order details must be completed below. Payment must be received prior to the commencement of the course.

1. Cheque Enclosed is my cheque for AU$ .................................................................
   (please make cheques payable to Chifley Business School Pty Ltd)

2. Credit card Please debit my credit card AU$ .............................................................
   □ AMEX □ Diners □ VISA □ MasterCard
   Card Number  .................................................................
   Cardholder’s name .............................................................
   Expiry date  .................................................................
   CCV/CID Number  ............................................................. located at the back of the card (AMEX at the front of the card)
   Cardholder’s signature .............................................................

3. EFT Chifley Business School BSB - 063-010 Account Number - 11225407.

4. Govt./Council order A copy of your purchase order must accompany this form.
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Please complete this form and return to:
Post:  Chifley Business School  l  PO Box 6077, St Kilda Road Central, VIC, 8008 Facsimile: 03 9514 3888 Tel: 1300 244 353

Confirmation of your registration will be forwarded to you in writing within 5 working days. If you do not receive confirmation, please contact us.