Introduction to Railroad Engineering and Operations

May 7–9, 2012
Madison, Wisconsin

This course focuses on increasing your skills and competencies and expanding your knowledge of railroad engineering, operations, and management.

- Railroad operating fundamentals and management
- Railroad engineering—alignment
- Railroad track structure—sub-ballast, ballast, ties, rail
- Special trackwork
- Signals, crossings, bridges, yards, and facilities
- Case studies, examples, and more
- Freight, inter-city passenger, and transit

Please route this brochure to colleagues who would also benefit by attending.

ENROLL ONLINE TODAY!
Or visit our Web site
Introduction to Railroad Engineering and Operations
May 7–9, 2012 in Madison, Wisconsin

Four Reasons Why You Should Attend
1. You will gain a working knowledge of railroad engineering and operations and many of the related concepts used for freight, intercity passenger, and rail transit systems.
2. You will also receive a comprehensive course notebook with many valuable references for your professional practice and for "back-home" post-conference briefings of other staff members.
3. By attending you will discover resources that can assist you in solving your job-related problems, perhaps facilitate your next promotion, and certainly increase your firm's and organization's visibility and profitability in the rail field.
4. Staff from organizations similar to yours will be attending. This means new opportunities for networking and maintaining links with clients, suppliers, manufacturers, designers, regulators, and others to keep you in touch with changes in technology and the marketplace.

Who Should Attend
• Engineering consultants
• Transportation engineers
• Railroad engineers and managers
• Operations managers
• Track supervisors
• Inspectors and technicians
• Railroad contractors and suppliers
• Local, state, and federal officials
• Public works professionals

Newly Redesigned Course
The University of Wisconsin–Madison has been conducting continuing education courses in railroad engineering and operations for over 25 years. This course will teach the many fundamentals of railroad engineering for design, construction, and maintenance, as well as the interfaces of planning, operations, and management. If you are new to the railroad industry or have very specific job responsibilities and need a broader understanding of railroad engineering and operations this is the course for you!

Case Study
This course includes a case study of the Iowa Northern Railway Co. On the third day of the course, we will talk about the many aspects of the course that we have discussed and see how they are used in practice on a successful regional railroad. Dan Sabin, President of Iowa Northern Railway Co., will share the story of his railroad and how this struggling small short line has grown into a successful and thriving regional railroad.

Your Instructors
Michael J. Loehr, PE, has over 30 years of railroad and consulting experience. He is the Practice Leader–Rail & Transit US for Hatch Mott MacDonald in Richmond, Virginia. Prior to joining HMM, Mike spent 10 years on Conrail and has worked on electrified commuter lines, constructed freight and intermodal yards, managed clearance projects and bridge repairs, and worked on teams that implemented significant TCS and construction projects in New York, Pennsylvania, Indiana, Ohio, and Massachusetts.

Jeff Keating is a senior project manager with HNTB Corp. He has more than 30 years of experience in transportation engineering, project management, and program management with an emphasis on large railroads, transit, and highway infrastructure programs. He has worked for and with Class I and III railroads, consultants, contractors, and federal, local, and regional public agencies.

Earl Currie is a railway operations consultant and author of four books on operations. Now retired, Earl had a career in line management in the railway industry for more than 40 years. He headed the operations departments of two Class I US railroads.

Dan Sabin is President of Iowa Northern Railway Co. He has grown the IANR to the point it will soon be classified as a regional. He has moved up the ranks from student train operator, train dispatcher, trainmaster, assistant superintendent, and director of service planning systems. He has also worked as a consultant serving rail shippers, state governments, and short lines.

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Course Outline and Schedule

Monday, May 7
7:30 Registration and Continental Breakfast
The Pyle Center
702 Langdon Street
Madison, WI
8:00 Introduction and Course Announcements
Dave Peterson, Director
Railroad Engineering Program
Department of Engineering Professional Development
University of Wisconsin–Madison
8:15 Course Overview
8:30 Railroad Industry Classifications
• Freight
• Transit
• Inter-city passenger and high-speed rail
• Other rail
Management Structures
Railroad Operational Units
• System-level safety, engineering, and purchasing
• Division-level transportation, car shop, communications, electric traction, locomotive shop, signals, structures, and track
10:15 Break
10:30 Railroad Operating Fundamentals
• Basic elements in railway operations
• Operating ratio and performance measures
• Development of competencies for managing operations
12:00 Lunch
1:00 Railroad Operations
• Freight-train types, car types
• Inter-city passenger rail-train types
• Locomotive builders/rebuilders
• Car fleets-private, car leasing, and car shops
• Contractors and consultants
• Industry trade groups
2:00 Break
2:15 Railroad Engineering—Alignment
• Geometric basics
  - differences between highway and rail
  - differences between freight and transit
• Horizontal alignment
  - curves, reverse curves, and compound curves
  - spirals
  - superelevation and cant deficiency
• Vertical alignment
  - grades
  - vertical curves
5:00 Adjourn

Tuesday, May 8
7:30 Continental Breakfast
8:00 Track Structure
• Subgrade/sub-ballast
• Ballast
• Ties
• Rail
11:00 Guideway
• Ballasted track
• Direct fixation
• Embedded track
12:00 Lunch
1:00 Special track work
• Turnouts
• Frogs
• Other
2:00 Signals
• Block signal systems
• Track circuits
• Aspects and indications
• Cab signals
• PTC (Positive Train Control)
3:00 Break
3:15 Crossings
• Geometric design
• At-grade crossings and grade separations
• Traffic control devices
4:15 Bridges
• Types of bridges
• Bridge ratings and maintenance programs
5:00 Adjourn

Wednesday, May 9
7:30 Continental Breakfast
8:00 Regional Railroad Case Study
• Iowa Northern Railway Co.
9:30 Break
9:45 Traction Power
10:15 Facilities
• Passenger platforms, yards, sanding and fueling, wheel truing, inspection and repair, and car washers
• Freight-classification yards, sanding and fueling, inspection and repair, transloading, and intermodal terminals
11:15 Yards and Intermodal
• Yard design considerations
• Ladder design
• Track centers
• Lighting
• Crew facilities
12:00 Final Adjourn

Railroad Engineering and Operations Program

The University of Wisconsin–Madison has been conducting continuing education courses for the railroad industry for over 20 years. We have trained over 3,000 people in our courses. Come to a UW–Madison Railroad Engineering and Operations course to enhance your career today!
Four Easy Ways to Enroll

Internet: http://epd.engr.wisc.edu/webN246

Phone: 800-462-0876 or 608-262-1299 (TDD 265-2370)

Mail to: Engineering Registration
         The Pyle Center, Dept. 107
         702 Langdon Street
         Madison, Wisconsin 53706

Fax: 800-442-4214 or 608-265-3448

Course Information

☐ Please enroll me in Introduction to Railroad Engineering and Operations
   Course #N246 May 7–9, 2012 in Madison, Wisconsin Fee: $1195

☐ I cannot attend at this time. Please send me brochures on future courses.

Personal Information (Please print clearly.)

Name ____________________________
Title ____________________________
Company _________________________
Address __________________________
City/State/Zip _______________________
Phone (_____) _____________________ Fax (_____) _____________________
E-mail ____________________________

Additional Enrollees

Name ____________________________
Title ____________________________
E-mail ____________________________

Billing Information

☐ Bill my company
☐ F.O. or check enclosed (Payable in U.S. funds to UW – Madison)

Card No. __________________________
Cardholder’s Name __________________________
Expire __________________________

UW# __________________________
From mailer panel.

Joint Information

☐ Please check the box if you are a person with a disability and desire special accommodations. A customer service representative will contact you. Requests will be kept confidential.

General Information

Fee Covers Three full days of instruction, comprehensive course notes, list of selected references, continental breakfasts, break refreshments, lunches, and Certificate of Participation. Fee does not include lodging or other meals. We do not publish proceedings. Due to copyright laws, course materials are not available to the public for resale after the course.

Enrollment and Confirmation We recommend enrollment in advance by fax, phone, online, or mail ($1195). Be certain you receive our confirmation before the course or call 608-262-1122.

Cancellation If you cannot attend, please notify us before April 30, and we will refund your fee. Cancellations received after this date and no-shows are subject to a $150 administrative fee. You may enroll a substitute at any time before the course starts.

Course Location This course will be held at the Pyle Center, 702 Langdon Street, Madison, WI. Phone message may be left for you at 608-262-1122.

Accommodations We have reserved a block of guest rooms (rates starting at $110, including shuttle) at Madison Concourse Hotel and Governor’s Club, One West Dayton Street, Madison, WI. To reserve a room, call 800-356-8293 or 608-257-6000 and indicate that you will be attending this course under group code 213057.

We have reserved a second block of guest rooms (rates starting at $89, including continental breakfast, parking, and private airport taxi ($30 value)) at Campus Inn, 601 Langdon Street, Madison, WI. To reserve a room, call 800-589-6285 or 608-257-4391 and indicate that you will be attending this course under group code #118307.

Accommodation requests made later than April 16 will be subject to availability.

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Room requests made later than April 16 will be subject to availability.

Contact us

Call toll free 800-462-0876 and ask for

Program Director: Dave Peterson, peterson@engr.wisc.edu
Program Associate: Theresa Rodger, rodger@epd.engr.wisc.edu
or e-mail custserv@epd.engr.wisc.edu

University of Wisconsin–Madison, Engineering and Operations Program, contact Dave Peterson, Director, Railroad engineering courses in 2012, please
For more information about railroad engineering courses in 2012, please contact Dave Peterson, Director, Railroad Engineering and Operations Program, University of Wisconsin–Madison, 608-262-2813 (direct) or 1-800-462-0876, peterson@epd.engr.wisc.edu or visit epd.engr.wisc.edu/railroadeng.