41st Annual National Course

Foundation Engineering and Design

January 25–27, 2016
Madison, Wisconsin

Get practical, design-oriented knowledge of the geotechnical and structural design and construction of safe and economical foundations.
Increase your knowledge and learn the principles and practices for the investigation, design, contracting, and construction of shallow, intermediate, and deep foundations, including stabilization of soft, wet, and problematic soils.

Who Should Attend?
- Civil and structural engineers and designers
- Engineers and contractors for military facilities
- Public works professionals
- Consultants
- Geological engineers and geoscientists
- Facility managers and physical plant engineers
- Contractors and estimators
- Developers and public/private land owners
- Utility engineers and managers
- Local, county, and state building commissioners and staff

Course Objectives
After attending this course, you will have a firm grasp of the background and design specifics necessary to compete in this industry, including industry-leading information on the principles and practices of foundation design for buildings, transportation infrastructure, utilities, and industrial facilities. Understand practical emerging technologies including design with the pressuremeter, aggregate piers, Load and Resistance Factor Design, excavation support during construction, and thermal foundations.

Instructors
Liiban Affi, PE, President, Foundation Engineering Consultants, Inc., Anaheim, CA
Bob Brandherm, Facility Manager, Epic Systems, Verona, WI
Tracy Brettmann, PE, D.GE, Vice President, A.H. Beck Foundation Co. Inc., Houston, TX
Raymond Franz, PE, Division Manager, Hayward Baker, Roselle, IL
Patrick Hannigan, PE, Vice President, GRL Engineers, Inc., Cleveland, OH
Van E. Komurka, PE, President Wagner Komurka Geotechnical Group, Inc., Cedarburg, WI
Michael G. Oliva, PhD, Professor Emeritus, University of Wisconsin–Madison
James M. Tinjum, PE, Associate Professor, University of Wisconsin–Madison
William Wuellner, PE, Senior Geotechnical Engineer, CGC, Inc., Madison, WI

“I took this course 4 years ago and it was great then and I noticed in the latest brochure that there were upgrades and I’m very happy I took the current course because it enlightened me on many new items in use today.”
Mike Till, PE, SEC
Michael J. Till Associates

What’s Next Starts Now epd.engr.wisc.edu/webR389
Course Outline

Day 1 – Shallow Foundations

Introduction and Course Goals
Foundation Contracting from an Owner’s Perspective
- Foundation selection
- Contracting, Implementation, Construction control

Geotechnics for Foundation Design and the Foundation Investigation
- Soil properties pertinent to foundation design
- Scoping the foundation investigation
- Foundation reporting

Bearing Capacity Selection for Shallow Foundations
- Failure modes and bearing capacity solutions
- In Situ determinations of bearing pressures
- Settlement-based solutions

Reinforced Concrete Design for Shallow Foundations
- ACI Code requirements
- Design examples for spread, combined, and strap footings
- Design examples for slabs and pile caps

Stone Columns and Aggregate Pier Systems
- Introduction to stone column and aggregate piers
- Design methodology

Day 2 – High Capacity and Deep Foundations

Pressuremeter for High-Capacity Shallow Foundations
- Typical bearing pressure increases and economic costs/benefits
- Design calculations

Pile Foundation Design
- Axial and lateral pile capacities
- Capacities and settlements of pile groups
- Static load testing
- Pile design economics

Dynamic Methods to Pile Foundation Design and Construction Control
- Wave equation analysis and applications
- Dynamic testing with the Pile Driving Analyzer

Drilled Shaft and Pier Foundation Design and Analysis
- Load transfer and evaluation of axial, lateral, and moment capacities
- Design examples

Geothermal Foundations
- Energy foundation components, configurations, and thermal design
- Design drawings, details, and specifications

Foundation Software Applications
- Shallow foundations
- Drilled piers

Day 3 – Special Topics

Design of Excavation Support Systems
- Cantilever soldier piles
- Tied back soldier beams
- Sheeting

Foundation Stabilization and Support
- Underpinning
- Micropiles
- Helical piles

Field Control and Quality Assurance for Foundation Construction
- Density and compaction control
- Specifications for foundation projects
- Foundation QA/QC for shallow foundations

Foundation Construction on Problem Soil
- Preloading and drainage (wick and sand drains)
- Foundations on expansive soil
- Chemical stabilization

Introduction to Load Resistance Factor Design for Foundation Design
- Limit states and LRFD design objectives
- Loads, load combinations, and load factors
- Application to bridge substructures and transportation infrastructure

Course Wrap-up and Special Topics

“Year in and year out, the University of Wisconsin’s continuing engineering education courses are second to none. I cannot overstress the first-rate quality of subject matter, speakers, and course reference materials.”

Garrett Gray, Project Engineer, SEECO Consultants, Inc., Tinley Park, Illinois
Course Schedule
Registration and course will be held at
The Pyle Center
702 Langdon Street
Madison, WI

Day 1
7:30 a.m. to 8:15 a.m. Registration and Continental Breakfast
8:15 a.m. to 5:30 p.m. Class

Day 2
7:15 a.m. to 7:45 a.m. Continental Breakfast
7:45 a.m. to 5:30 p.m. Class

Day 3
7:15 a.m. to 7:45 a.m. Continental Breakfast
7:45 a.m. to 4:30 p.m. Class

Midmorning and midafternoon refreshment breaks and noon lunch will be provided.

Need to Know More?
Call toll free 800-462-0876 and ask for
Program Director: Professor James M. Tinjum
jmtinjum@wisc.edu
Program Associate: Theresa Rodger
theresa.rodger@wisc.edu
Or e-mail custserv@epd.engr.wisc.edu

General Information
Fee Covers Course notes binder, a reference CD, our unique Soil Classification Board (leave room in your suitcase), references for further study, continental breakfasts, break refreshments, lunches, and certificate.
Cancellation If you cannot attend please notify us seven days prior to the course start, and we will refund your fee. Cancellations received after that date and no-shows are subject to a $150 administrative fee. You may enroll a substitute at any time before the course starts.
Location The Pyle Center 702 Langdon Street, Madison, WI.
Phone messages: 608-262-1122.
Accommodations Reserve a room (rates starting at $94, including continental breakfast) at the Lowell Center online by visiting epd.engr.wisc.edu/lodgingR389 or call 866-301-1753 or 608-256-2621 and use group code R389EPD. Room requests after December 23, 2015 will be subject to availability. Or, reserve a room (rates starting at $99, including continental breakfast) at the Graduate Madison online at epd.engr.wisc.edu/lodgingR389 or call 800-589-6285 or 608-257-4391 and use group code EPDR389. Room requests after December 24, 2015 will be subject to availability.
This course meets the requirements for Professional Development Hours (PDH) and AIA Learning Units (LU/HSW) in all states.

Enroll Today!
Internet: epd.engr.wisc.edu/webR389
Phone: 800-462-0876 or 608-262-1299 (TDD 265-2370)
Fax: 800-442-4214 or 608-265-3448
Mail to: The Pyle Center, Attn: Engineering Registration
702 Langdon Street
Madison, Wisconsin 53706

Course Information
☐ Please enroll me in Foundation Engineering and Design Course #R389 January 25-27, 2016 in Madison, Wisconsin
Fee: $1295
☐ Team Discount: $1145 for two or more from the same company
☐ 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 (_______) ____________________
E-mail ______________________________

Billing Information
☐ Bill my company ☐ P.O. or check enclosed (Payable in U.S. funds to UW-Madison)
☐ MasterCard ☐ VISA ☐ American Express
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What’s Next Starts Now epd.engr.wisc.edu/webR389