Agenda

Presented by David Harmanos, P.E., LEED AP

Soil Mechanics, Bearing Capacity and Slope Stabilization
Allentown, PA - Wednesday, February 13, 2019

Learning Objectives

You’ll be able to:

**Identify** appropriate soil investigation methods.

**Understand** key properties of soil, including soil permeability and compressibility.

**Determine** bearing capacity and know how to increase it through draining and compaction.

**Evaluate** slope stability and understand slope failures.

**Explore** slope stabilization methods including reinforcement and improvement.

Soil Investigation and Classification
- Properties of soil
- Importance of recognizing soil properties
- Formation of soils
- Types of soils

Soil investigation
- Site reconnaissance
- Geology and visual observations
- Drilling and boring
- Test pits
- Establishing appropriate investigational methods
- Obtaining and reviewing geotechnical reports

Reviewing Hydraulic and Mechanical Properties of Soils
- Soil permeability
- Compressibility of soil
- Drained and undrained shear strength
- Vertical and lateral earth pressure

Determining and Increasing Bearing Capacity
- Calculating bearing capacity
- Bearing capacity of shallow foundations
- Bearing capacity of piers and piles
- Increasing bearing capacity
- Draining and compaction

Determining and Increasing Slope Stability
- Natural and engineered slopes
- Reviewing basic concepts of slope stability
- Understanding slope failures
- Impact of surface water and groundwater
- Examining slope stabilization methods
- Unloading
- Draining and compaction
- Reinforcement
- Soil improvement

Soil permeability
Compressibility of soil
Drained and undrained shear strength
Vertical and lateral earth pressure
Stress and failure in soils

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Examining slope stabilization methods
Unloading
Draining and compaction
Reinforcement

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Learn about the properties of soil and explore soil investigation procedures
Review hydraulic and mechanical properties of soils and learn about stress and failure in soils
Examine the bearing capacity of shallow foundations, piers and piles
Understand slope failures and the impact of surface and groundwater
Compare slope stabilization methods, such as unloading and draining

Continuing Education Credits

<table>
<thead>
<tr>
<th>Professional Engineers</th>
<th>6.5 PDHs</th>
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<tbody>
<tr>
<td>Architects</td>
<td>6.5 HSW CE Hours</td>
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<tr>
<td>Landscape Architects</td>
<td>6.5 LA CES HSW PDHs</td>
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<tr>
<td>Contractors</td>
<td>Non-Credit Continuing Ed.</td>
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Additional Learning

Webinar Series

Commercial Solar Peaker Batteries
• Commercial Solar Peaker Batteries, Part I
  Wed., Jan. 9, 2019, 11:00 AM - 3:15 PM CST
• Commercial Solar Peaker Batteries, Part II
  Thurs., Jan. 10, 2019, 11:00 AM - 2:15 PM CST

Proposal Writing
Fri., Jan. 11, 2019, 11:00 AM - 5:30 PM CST

Technical Writing
• Technical Writing Basics
  Mon., Jan. 14, 2019, 11:00 AM - 1:00 PM CST
• Planning Documents
  Mon., Jan. 14, 2019, 1:30 - 3:30 PM CST
• Writing Documents
  Tues., Jan. 15, 2019, 11:00 AM - 1:00 PM CST
• Revising and Editing Documents
  Tues., Jan. 15, 2019, 1:30 - 3:30 PM CST

Fiber-Reinforced Composites
• Portland Cement and Masonry
  Thurs., Jan. 17, 2019, 11:00 AM - 1:00 PM CST
• Fiber-Reinforced Composites
  Thurs., Jan. 17, 2019, 1:30 - 3:30 PM CST
• Fiber-Reinforced Polymer (FRP) Composites
  Reinforcement
  Fri., Jan. 18, 2019, 11:00 AM - 1:00 PM CST
• Overview of Sandwich Materials and Structures
  Fri., Jan. 18, 2019, 1:30 - 3:30 PM CST

Pumping and Piping Systems
• Introduction to Pumps: Operation, Principles and Calculations
  Thurs., Jan. 24, 2019, 12:00 - 2:00 PM CST
• Design Standards and Codes
  Thurs., Jan. 24, 2019, 2:30 - 3:30 PM CST
• Piping System Components, Materials and Calculations
  Fri., Jan. 25, 2019, 12:00 - 2:00 PM CST
• Handling Pump and Piping System Problems
  Fri., Jan. 25, 2019, 2:30 - 5:30 PM CST

For more information visit: www.halfmoonevents.org/webinars/

Can't Attend? Order the Manual and Audio from the Live Seminar as a Self-Study Package!
An audio recording of this seminar is available for $289. Allow four weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Registration

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How to Register

Online: www.halfmoonevents.org
Phone: 715-835-5900
Fax: 715-835-6066
Code: 715-835-6066
Complete the entire form. Attach duplicates if necessary.

Tuition

• I will be attending the live seminar. Single Registrant - $279.00
  Three or more registrants from the same company registering at the same time - $220.00 each.
• I am not attending. Please send me the self-study package for $289.00
  Downloadable MP3 Audio/PDF Manual
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Checks: Make payable to HalfMoon Education Inc.
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David Harmanos, P.E., LEED AP Branch Manager at Hillis-Carnes Engineering Associates, Inc.
Mr. Harmanos is an engineering professional with extensive experience in subsurface exploration, soil testing, infiltration testing, geosynthetic, and seismic and advanced analysis. His expertise includes commercial, industrial and institutional foundation design, retaining wall and steep slope design; sinkhole remediation; landfill design; site work; forensic engineering; LEED consulting; and construction quality control/assurance (CQA/QC). Mr. Harmanos is a graduate of Drexel University where he received both his BS and MS degrees in Civil Engineering (Geosynthetics and Geotechnical).

Hillis-Carnes performs geotechnical engineering consulting and laboratory testing services. Its construction services include evaluation of bearing materials, inspection of pile driving, slope inclinometer installation and monitoring, and retaining wall construction observation.

Here’s what past attendees had to say about the program and presenter David Harmanos:
"Very knowledgeable instructor, has an excellent grasp on the subject." — Engineer
"Very informative & helpful." — Architect
"Very knowledgeable instructor, has an excellent grasp on the subject." — Facilities Engineer
"Excellent presentation." — Project Manager/Owner/Developer

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects and landscape architects in most states, including Pennsylvania. Educators and courses are not subject to pre-approval in Pennsylvania.

This seminar is approved by the American Institute of Architects for 6.5 HSW Learning Units (Sponsor No. J885) and the Landscape Architecture Continuing Education System for 6.5 HSW PDHs. Only full attendance can be reported to the AIA/CES and LA/CES.

Hilli-Edison University is an approved continuing education sponsor for engineers in Florida, Indiana, Maryland, New Jersey (Approval No. 24GP00020700), New York (NYSED Sponsor Approval No. 54720-0278), and Washington (Washington State Approvals: 5032-0059).

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