FALL 2016 - ENSOFT SHORT COURSE
Design of Deep Foundations: Drilled Shafts and Piles Under Lateral and Axial Loading
A Seminar and Workshop Featuring Computer Programs from Ensoft, Inc.
Nov. 29 - Dec. 1, 2016

SPEAKERS

William M. Isenhower, Ph.D., P.E.
Program Manager for LPILE, Ensoft, Inc. Dr. Isenhower is a registered professional engineering in the States of Texas and Louisiana, with over 30 years of experience in civil engineering, with an emphasis on geotechnical engineering. His experience has been in consulting, government service, university teaching and contract research. He has been engaged in consulting projects, site investigations, foundation analysis and design, slope stability analysis and design, and retaining structure analysis and design. Dr. Isenhower has served as an Expert on Mission for the United Nations Development Program and has served as an independent technical reviewer for the US Army Corps of Engineers. He has authored over 30 technical papers and reports, and has presented invited lectures in the United States and abroad. Dr. Isenhower is a member of the Academy of Distinguished Graduates of the Department of Civil, Architectural, and Environmental Engineering of the University of Texas at Austin.

Shin-Tower Wang, Ph.D., P.E.
President, Ensoft, Inc., Program Manager for SHAFT, APILE, and PYWALL. Dr. Wang is a registered professional engineering in the State of Texas, with over 30 years of experience in civil engineering, with an emphasis on geotechnical and structural engineering. He has engaged in numerous consulting projects in soil-structure interaction analyses, pile loading tests, deep foundation designs, and numerical analyses. Dr. Wang received M.S. and Ph.D. degrees from The University of Texas at Austin. He has published over 30 technical papers and reports, and has coauthored several computer programs that are currently sold by Ensoft, Inc.

Gonzalo Vasquez, Ph.D., P.E.
Program Manager for Group, Ensoft, Inc. Dr. Vasquez is a registered engineer in the States of Texas and California, with over 20 years of experience in civil engineering. Dr. Vasquez is an expert in solid structural modeling for nonlinear, three-dimensional stress analysis. Dr. Wang received M.S. and Ph.D. degrees from The University of Texas at Austin.

Farnyuh Michael Menq, Ph.D.
Program Engineer for Dynamic Tests, Ensoft, Inc. Dr. Menq has been working in the field of dynamic testing in the past 17 years at the University of Texas at Austin. He has extensive experience in laboratory resonant column and torsional shear tests, laboratory free-free resonant column tests, Rolling Dynamic Deflector (RDD) tests, Stationary Dynamic Deflector (SDD) tests, Spectral Analysis of Surface Waves (SASW), impulse-echo tests, cross hole tests, downhole tests, in-situ nonlinear tests, and in-situ liquefaction tests. He has published over 25 technical papers and reports. Dr. Menq received his Ph.D. degree from the University of Texas at Austin.

LOCATION & RESERVATIONS

Ensoft, Inc. – Office Building
3003 West Howard Lane, Austin, Texas 78728
Tel. (512) 244-6464, Fax (512) 244-6067

Sample Hotel Information:
Country Inn & Suites, Tel. (512) 251-9110
14620 N. IH-35, Austin, TX 78728
Hampton Inn (Northwest), Tel. (512) 349-9898
3908 W. Braker Lane, Austin, TX 78759
La Quinta Inn & Suites, Tel. (512) 832-2121
11901 N Mopac Expy, Austin, TX 78759

(These hotels are within 5-10 minutes driving distance from the training facility)

REGISTRATION & FEES

Single Registration(1)(*) Early Rates Std. Rates
(2)(3)
(up to Oct. 31) (after Oct. 31)
One-Day Session................................. $570 ...............$690
Two-Day Session.................................$820 ...............$1000
All 3-Day Sessions.............................$1060 ..............$1290

Multiple Registrations(1)(2)(*) Early Rates Std. Rates
(Rates per person)
(4)(5)
(up to Oct. 31) (after Oct. 31)
One-Day Session................................ $530 ...............$640
Two-Day Session.................................$760 ...............$930
All 3-Day Sessions.............................$990 ...............$1200

(1) Includes student workbook, lunch, coffee breaks and refreshments.
(2) Valid for 2 or more registrations from the same company.
(*) See cancellation policy under General Notes on page 3.

TOTAL.............................................. $__________

Name(s): ________________________________________________________________

Company: ________________________________________________________________

Address: ________________________________________________________________

City/ST/Zip: _____________________________________________________________

Phone: ___________________ Fax: ___________________

E-mail: ________________________________

Please select your method of payment:
☐ Check enclosed  ☐ Credit card

Name on card: ___________________________________________ Exp.: __________

For more details or online registration, visit us at www.ensoftinc.com or send email to seminars@ensoftinc.com
# FALL 2016 - ENSOFT SHORT COURSE

## Design of Deep Foundations: Drilled Shafts and Piles Under Lateral and Axial Loading

*A Seminar and Workshop Featuring Computer Programs from Ensoft, Inc.*

## Program

### Tue. Nov. 29, 2016 (Full Day)

The first full day has been prepared for expert-level training in the design of single piles or shafts under lateral loads using the LPILE software.

<table>
<thead>
<tr>
<th>Time</th>
<th>Subject</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Arrival, computer setup, software installation</td>
<td>Isenhower</td>
</tr>
<tr>
<td>8:15</td>
<td>Course introduction</td>
<td>Isenhower</td>
</tr>
<tr>
<td>8:30</td>
<td>Principles of Soil-Structure Interaction. Modern principles for design of foundations, types of loading.</td>
<td>Isenhower</td>
</tr>
<tr>
<td>9:30</td>
<td>Theoretical Basis of Lateral Load-Transfer Models and Experimental Validation</td>
<td>Isenhower</td>
</tr>
<tr>
<td>10:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>10:15</td>
<td>$p$-$y$ Curves Available in LPILE and GROUP</td>
<td>Isenhower</td>
</tr>
<tr>
<td>11:00</td>
<td>Structural Analysis of Piles and Drilled Shafts, Nonlinear Moment-Curvature Behavior of Drilled Shafts and Prestressed Concrete Piles</td>
<td>Isenhower</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>1:00</td>
<td>Software Training for LPILE (Part 1)</td>
<td>Isenhower</td>
</tr>
<tr>
<td>2:45</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>3:00</td>
<td>Software Training for LPILE (Part 2)</td>
<td>Isenhower</td>
</tr>
<tr>
<td>4:00</td>
<td>General Question and Answer. Consultation on Problems of Interest</td>
<td>Isenhower</td>
</tr>
</tbody>
</table>

### Wed. Nov. 30, 2016 (Full Day)

The second full day adds training in the design of single drilled shafts under axial loads and pile groups under combined loading.

<table>
<thead>
<tr>
<th>Time</th>
<th>Subject</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Practical Considerations for Design of Drilled Shaft Foundations</td>
<td>Isenhower</td>
</tr>
<tr>
<td>9:30</td>
<td>Drilled Shafts and Driven Piles Under Axial Loading. Use of $t$-$z$ and $q$-$w$ curves</td>
<td>Isenhower</td>
</tr>
<tr>
<td>10:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>10:15</td>
<td>Software Training with SHAFT</td>
<td>Wang</td>
</tr>
<tr>
<td>11:00</td>
<td>Testing of a fully instrumented pile under axial/lateral loading. Inside and outside practical presentations.</td>
<td>Isenhower</td>
</tr>
<tr>
<td>12:00</td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>1:00</td>
<td>Analysis of Pile Groups Under Axial and Lateral Loading.</td>
<td>Vasquez</td>
</tr>
<tr>
<td>2:30</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>2:45</td>
<td>Software Training for GROUP – Basic Input, Visualization of Results</td>
<td>Vasquez</td>
</tr>
<tr>
<td>4:00</td>
<td>Software Training for Group – Advanced Input, Interactive Group Modeling</td>
<td>Vasquez</td>
</tr>
</tbody>
</table>

For more details or online registration, visit us at [www.ensoftinc.com](http://www.ensoftinc.com) or send email to seminars@ensoftinc.com
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Program

Thur. Dec. 01, 2016 (Full Day)
The final day adds training in the design of single piles under axial loads, common NDT and flexible retaining walls.

<table>
<thead>
<tr>
<th>Time</th>
<th>Subject</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:00</td>
<td>Driven Piles Under Axial Loading</td>
<td>Wang</td>
</tr>
<tr>
<td>9:30</td>
<td>Software Training for APILE</td>
<td>Wang</td>
</tr>
<tr>
<td>10:30</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>Introduction to Non-Destructive Tests on Drilled Shafts</td>
<td>Menq</td>
</tr>
<tr>
<td>11:30</td>
<td>Modal Analyses of Structures Using Ambient Vibration</td>
<td>Menq</td>
</tr>
<tr>
<td>12:30</td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>1:45</td>
<td>Introduction to the Designs of Flexible Retaining Walls</td>
<td>Wang</td>
</tr>
<tr>
<td>3:00</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>4:00</td>
<td>Software Training for PYWALL</td>
<td>Wang</td>
</tr>
<tr>
<td>5:00</td>
<td>General Question and Answer. Consultation on Problems of Interest</td>
<td>All</td>
</tr>
<tr>
<td>6:00</td>
<td>End of Short Course</td>
<td></td>
</tr>
</tbody>
</table>

PDH CREDITS

Attendance of this short course will provide you with up to 19 professional development hours (PDH) that can be applied towards your local P.E. license requirements for renewal. Ensoft provides a signed document for the participation in the professional short course along with the number of hours of training.

Call us at 512-244-6464 or visit our web site to register for the short course

For more details or online registration, visit us at www.ensoftinc.com or send email to seminars@ensoftinc.com

GENERAL NOTES

All students will receive a student notebook containing reference and lecture materials, along with USB memory stick of relevant technical materials.

Attendees are encouraged to bring a laptop computer to the course. The latest associated software products will be provided to attendees for the duration of the course so users will be able to participate in the solution of design exercises. A limited number of computers will be provided to attendees that are not able to bring their own notebooks.

Those attending the short course are also encouraged to bring design problems of interest to them and their employers. Advice on how to set up design computations for the design problem and guidance about preparation of plans and specification will be provided by the instructors.

The number of spaces available in the short course is limited, so registration will be based on a first come-first served basis.

Cancellations made prior to two weeks from the Short Course will be charged half the total fees. Late cancellations are not refundable but payment may be extended to a future short course. Emergency cancellations may be accepted until five days before the short course.

Companies wishing to inquire about having the same training course or another advanced training course to be held at their offices may call Ensoft to obtain a cost proposal.

Companies wanting information about the two-day short course on Design and Construction of Drilled Shafts offered by Ensoft may call to obtain a cost proposal.

COURSE BENEFITS

♦ Learn how to use effective tools and proper numerical models for deep foundations ♦ Improve the efficiency of your future foundation designs ♦ Keep short course manuals and personal notes as reference for future numerical models and designs of deep foundations ♦ Use the limited 20% discount on software upgrades and new purchases for the whole office site of registered attendants to the short course ♦ Earn up to 19 PDH credits towards PE renewals for this course ♦
GROUP 2016

• Expanded internal computations of nonlinear material behaviors in flexure for pile sections with embedded steel shapes.

• Introduced variable ground layers that can start at any soil layer and automatic calculation of load-vs-settlement for different pile penetrations.

• Export observed graphics to formatted Excel spreadsheet. Users can thus easily reformat the graphical display for use of different units, titles & presentation.

• Apply & solve for user-specified displacements/rotations (in 3D space) in the GROUP model.

• Foundation stiffness can be generated based on equivalent elastic stiffness (thus generating a symmetric stiffness matrix);

• Users can specify p-y modification factors for lateral loads along the length (depth) of the piles;

• Tapered pile sections are now added to the type of piles that can be analyzed in group models;

• GROUP is able to estimate the variation of axial loads and axial displacements along the length of the piles;

SOFTWARE TITLES:

LPile 2016 ........................................ $1,000
GROUP 2016 ........................................ $1,800
SHAFT 2016 ......................................... $850
PYWall 2015 .......................................... $850
APile 2015 ........................................... $850
APile 2015 (Offshore Version) .................. $1,250
TzPile 2014 ........................................... $850
StabPro 2015 ......................................... $580
LPile 3.0 ................................................ $490
Dynapile 2016 ....................................... $1,900
DynaMat 1.0 ........................................... $1,490
DynaMat 3.0 ........................................... $2,900
Ensoft Dynamic Suite ............................ $5,000
GeoMat 2014 ......................................... $1,450
Atena (FEM analysis of reinforced concrete) call
AMPS (3D Finite Element Analysis) call

Call for volume, upgrades, and academic pricing
(Prices above are before 20% participation discount)

GROUP 2016

• New hybrid p-y criteria for liquefied sands (Franke & Rollins) - new massive rock criteria added earlier.

• User may input lateral load test results for comparison to computed pile response for the purpose of calibrating input properties to optimize pile designs.

• Output reports may be generated either in detailed wide format or a narrow format optimized for printing.

• Special features for evaluation of nonlinear moment curvature, pile-head stiffness components, pushover analysis, and pile buckling analysis.

• Additional types of graphs and improved versions of existing graphs.

• Ability to enter single or multiple profiles for distributed lateral loading and lateral soil movement loading.

• Up 100 LRFD load case combinations, including checks on moment capacity and shear capacity.

• LRFD loading definitions of shear, moment, axial thrust, and distributed lateral loading for 13 load types.

• Pile definitions may include up to 20 sections of 14 different pile types and six pile cross-sectional shapes.

• Type of decimal character used in output report (either point or comma) is determined by Windows keyboard definition.

• Introduced the ability to perform batch analyses of multiple input-data files.

• New tool is provided to help computation of horizontal and vertical force components on battered piles.

BOOKS/PUBLICATIONS:


Hardback ................................................. $130

Analysis and Design of Shallow and Deep Foundations
Lymon C. Reese et al. (Wiley, Nov. 2005, 608pp.)

Hardback ................................................. $130

SHAFT 2016

• User interface has more features than earlier versions, to enhance input of data that is only applicable to selected parameters and methods.

• Users can select any of the observed graphics for export to an Excel spreadsheet that SHAFT configures with all correct conversions and necessary tabs. Users can thus easily reformat the graphical display for use of different units and titles in their reports.

• The new SHAFT v2016 can perform multiple runs for each model to produce new charts that are useful for the selection of the most appropriate shaft diameter and penetration during the design stage.

• In Sand criteria users can now select to use the Beta or Ko methods for axial load transfers.

• Computations and charts of load-vs-settlement are now provided for user-selected ranges of pile penetrations.