

Geotechnical Foundation Systems

Analysis and Evaluation of Footings, Mats, Driven Pilings, Drilled Shafts, and Ground Modification Techniques

Full Scale Load Tests



Dead Weight
www.hindu.com



Reaction Frame
www2.dot.ca.gov



Statnamic Load Test
www.statnamicurope.com



Osterberg Cell
www.fhwa.dot.gov

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CEE 6443

GeoSystems Engineering

Paul W. Mayne, PhD, P.E.
Civil & Environmental Engineering
Georgia Institute of Technology
Atlanta, GA 30332-0355

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Analytical Solutions for Capacity and Deformation Evaluations of Shallow Footings & Mats and Driven Pilings & Drilled Deep Foundations

CEE 6443 - GeoSystems Engineering

Paul W. Mayne, PhD, P.E.

Professor - Geosystems Engineering Group
School of Civil & Environmental Engineering
Georgia Institute of Technology
Office IPST Room 225
Atlanta, GA 30332-0355

Phone: 404-894-6226

Fax: 404-894-2281

Email: paul.mayne@ce.gatech.edu

MAYNE: <http://geosystems.ce.gatech.edu/Faculty/Mayne>

CEE Website: www.ce.gatech.edu/research/geosystems

GT In-Situ: <http://geosystems.ce.gatech.edu/Faculty/Mayne/Research/index.html>

ISSMGE TC 16 In-Situ Testing: www.webforum.com/tc16

Proceedings:Symposium on Cone Penetration: www.cpt10.com

5th IS-Deformation of Geomaterials Aug. 2011: www.isseoul2011.org

ASCE State of the Art & Practice - March 2012: www.geoinstitute.org

2012 Nordic Geotech - Copenhagen (09-11 May): <http://www.ngm2012.dk>

GeoEngineering Education, Ireland - 04-06 July 2012: www.sfge2012.com

4th International Site Characterization - Brazil Sept 2012: <http://isc-4.com>

18th Intl. Conf. Soil Mechanics & Geotech Engrg- Paris -Sept 2013: www.issmge.org

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Geotechnical Foundation Systems

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Syllabus for CEE 6443 - Geotechnical Foundation Systems - Fall 2013

Class Schedule: Tuesdays and Thursdays, 9:35 to 10:55 a.m.
 Class Room: Mason 3132
 Documents:

- CEE 6443 Class Notes “Geotech Foundation Systems”= PDF download from T-square
- Supplemental Ref: NHI (2002) Manual on Subsurface Investigations (from PWM website*)
- Additional Reference: Elastic Solutions for Soil & Rock Mechanics (1974) by Poulos & Davis; PDF download from: www.usucger.org

 T-Square: <https://t-square.gatech.edu/portal>
 Instructor: Paul W. Mayne, PhD, P.E., Professor, Civil & Environmental Engineering
 *PWM Website: <http://geosystems.ce.gatech.edu/Faculty/Mayne/Research/index.html>
 Office Hours: Tuesdays and Thursdays: 11 a.m. to 1 p.m.; or by appointment
 Contact Info: Email: paul.mayne@gatech.edu; Ph: 404-894-6226 Fax-2281
 Office Room: 2245 Mason Building: 790 Atlantic Drive 30332-0355
 Support Staff: Lisa Tuttle, Geosystems Administrative Coordinator
 Email: lisa.tuttle@ce.gatech.edu
 Grading: Midterm 1 (25%); Midterm 2 (25%); Final (30%); and approx. 7 to 8 homeworks (20%)
 GRA: Fawad Niazi: Mason 2244: email: fniazi6@gatech.edu

Tentative class schedule and topics* - Fall 2013 semester

<i>Tuesday Class Date</i>	<i>Thursday Class Date</i>	<i>Remarks</i>
Aug 20: Introduction; Notes; T-square	Aug 22: Units; Geomaterials; Background	
Aug 27: Engineering geology	Aug. 29: Overconsolidation ; Geostatic stress history	
18 th ICSMGE, Paris	Sept 05: In-situ testing methods	Thurs class by Dr. Greg Hebler
Sept 10: Field Geophysics	Sept 12: To Be Announced (TBA)	
Sept 17: Critical-state soil mechanics	Sept 19: Bearing capacity by limit plasticity - solutions	
Sept 24: Bearing capacity case studies; soil parameter evaluation by in-situ tests	Sept 26: Interpretation of load tests	
Oct 01: <i>MIDTERM 1* (tentative)</i>	Oct 03: Stress distributions beneath surface foundations	(01oct - GeoVA)
Oct 08: Foundations on fractured rock	Oct 10: Elastic continuum solutions; displacement influence factors	
Oct 15: no class (GT fall recess)	Oct 17: Settlement calculations; Case studies	Fall Recess on 14-15 October
Oct 22: Deep foundation systems: Driven Piles; Drilled & augered shafts	Oct 24: Axial pile capacity; pile types & installation	(21-24oct - DFI Conf at Marriott)
Oct 29: Pile side resistance; end bearing; load transfer distributions	Oct 31: Applications & case studies	
Nov 05: Pile displacements using elastic continuum solutions	Nov 07; Pile groups; pile supported rafts	
Nov 12: ADSC-ASCE-FHWA Load Test at GT Campus	Nov. 14: <i>MIDTERM 2* (tentative)</i>	(14-Nov – Univ Kansas)
Nov 19: Approx. nonlinear pile response; direct in-situ methods	Nov 21; Advances: Statnamics; O-Cell; Integrity Testing; Press-in-piling	
Nov. 26: Lateral and moment pile capacity and response	no class (holiday)	Thanksgiving holiday 28-29
Dec. 03: Ground modification	Dec. 05: Site improvement	
<i>FINAL EXAM:</i>		
Period 10 for classes T TH 9:00am & 9:30am: scheduled for Dec 12 (Thursday) 08:00am - 10:50am		

*Note: tentative and subject to change