

**1.364 ADVANCED GEOTECHNICAL ENGINEERING**  
**TERM PAPER**  
**FALL SEMESTER 2003**

The lecture notes and homework exercises in 1.364 focus mainly on analysis methods and parameter selection used in solving geotechnical engineering problems. The term paper offers the opportunity to investigate in more depth one selected topic, addressing issues such as constructability or field performance of a new technology. The term paper should be based on a literature review and should be presented in the format of a publishable paper which includes an abstract, main text (with introduction and conclusions sections), tables, figures and references (please follow the format shown in the attached pages). The complete document should be no more than 15-20 pages long (including all figures etc.), and should be submitted in both electronic (.pdf) and hard copy formats on or before Monday December 8<sup>th</sup>. Below is a list of suggested topics. You are welcome to select one of these or to propose your own topic area. In either case, by Friday October 10<sup>th</sup> you must present a one page description of the planned paper together with a few key references for approval before proceeding to write the paper.

1. Use of micropiles for underpinning of structures
2. Design of drill and grout piles
3. Effects of vibrations caused by pile installation
4. Detection of defects in drilled shafts
5. Reliability of dynamic methods for predicting pile capacity
6. Effectiveness of mechanical compaction methods
7. Use of piles/soil nails for slope stabilization
8. Strengthening of soft clays using lime columns
9. Soil-structure interaction in jackup foundations
10. Design of embankments with basal reinforcement
11. Design of pile foundations to resist scour
12. Design and construction of soil-mix walls
13. Applications of Time Domain Reflectometry in geotechnical monitoring
14. Soil strength parameters for bearing capacity of foundations subject to cyclic loading