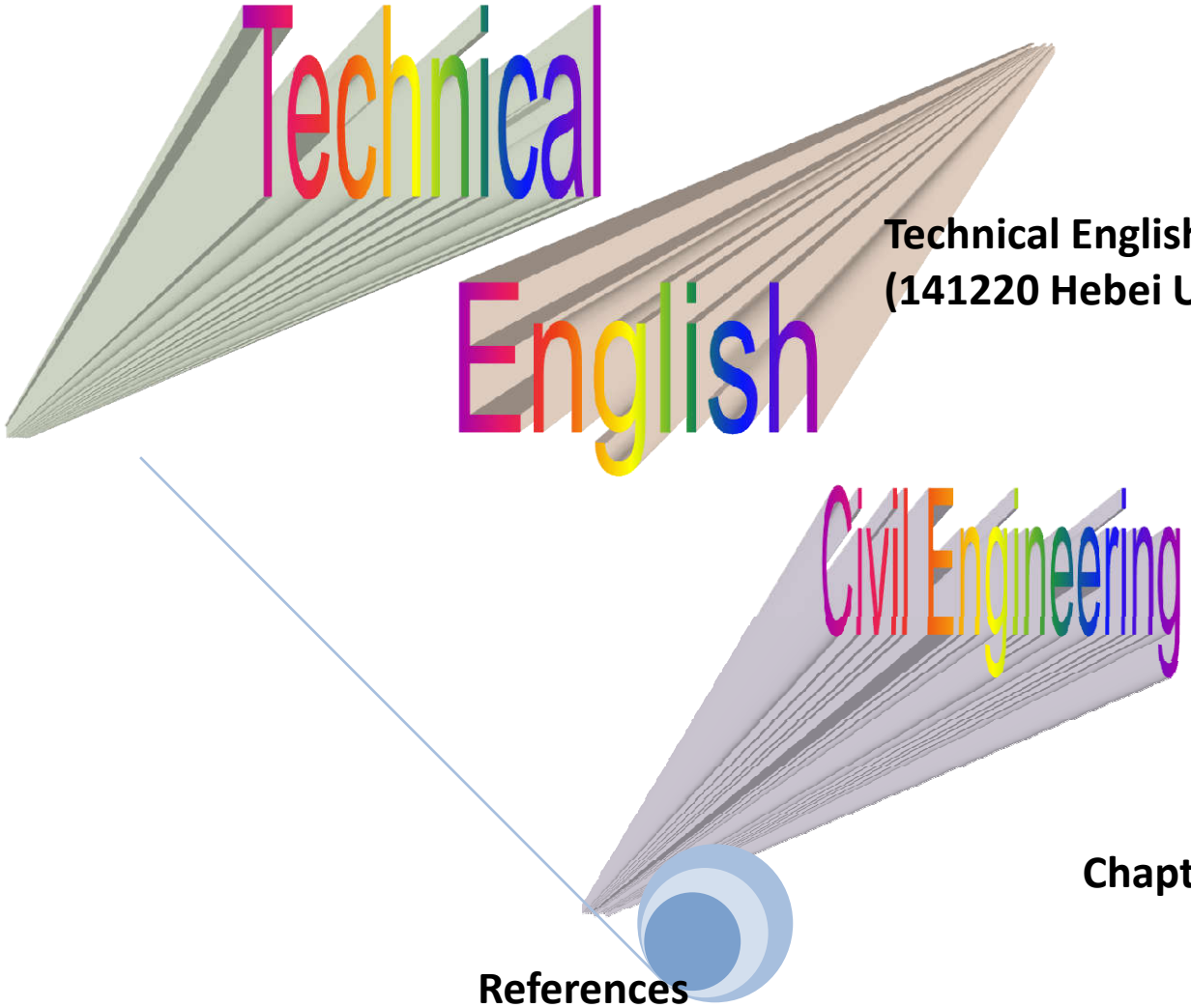

Technical English in Civil Engineering
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Chapter 08 Geotechnical Engineering

References

Recent research and development of ground column technologies

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Movies are coming up !!!

Chap08 What is Geotechnical Engineering.mp3 **7 minutes**

Proceedings of the Institution of Civil Engineers Ground Improvement 2015, 168(GI4):246-264 **P202**

see also **http://kcengineers.org/geotech/wordpress-content/uploads/2012/12/KC_Lecture_2013_Han.ppt**

Jie Han **Professor** **The University of Kansas, USA** KC_Lecture_2013_Han

Recent research and development of ground column technologies

Performance of the New Orleans Leeve systems in hurricane Katrina **P221**

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Business is unfinished. Long road is still far away

In recent years, ground columns, such as vibro-concrete columns and geosynthetic-reinforced stone columns, have been increasingly used to support superstructures and embankments when they are constructed on soft foundations. Several new column technologies have emerged, including different shapes of concrete columns and composite columns. The column technologies have also been combined with other technologies to create more effective and/or economic solutions. However, the composite columns and the combined technologies have presented complicated geotechnical problems in design and construction.

This paper summarises different types of column technologies and their functions, installation and applications, addresses design issues, and reviews recent research and development related to the column technologies to improve soft foundations, including failure modes, load transfer mechanisms, bearing capacity, settlement, consolidation and stability. Recent research has indicated that lateral deformation and yielding of columns should be considered in a unit cell model for the analyses of load transfer, deformation and consolidation. Several theoretical solutions have been proposed for the rate of consolidation of column-reinforced soft foundations. Different failure modes should be evaluated for the stability of column-supported embankments. Limit equilibrium methods based on shear failure overestimate the factors of safety of embankments on rigid or semi-rigid columns in soft soil.

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The end

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