

**Advanced Geotechnical Engineering** (Register number: 70008, Credit: 2)

Lecturer: Assoc.Prof. Thirapong Pipatpongsa

Semester: Second semester (odd year)

Period: Monday 13:20-14:50 (5-6)

Class room: Ookayama South Bldg. 6, 3<sup>rd</sup> Floor, Room S636

Synopsis: Theory of elasticity and plasticity is used to describe mechanical behaviors of granular materials in many engineering and industrial applications. Sand, agricultural grains and chemical particles are granule in nature. Therefore, inelastic responses of granular media are important in construction, storage and process. This course provides the advanced subject in Geomechanics and Powder mechanics to understand load transfer mechanisms and predict stress distributions. Analytical and numerical methods based on continuum mechanics are given with applications to retaining wall, slope, heap, silo and hopper.

Class schedule:

1	Oct 3 (Mon)	Stress and notation
2	Oct 17 (Mon)	Mohr stress circle
3	Oct 27 (Thu)	Equilibrium equations
4	Oct 31 (Mon)	Airy stress function
	Nov 7 (Mon)	<No class>
5	Nov 14 (Mon)	Granular media stored in silo
6	Nov 21 (Mon)	Granular media stored in hopper
7	Nov 28 (Mon)	Friction of walls in active/passive conditions
8	Dec 5 (Mon)	Stress orientation and radial stress
9	Dec 12 (Mon)	Stress in wedge-shaped granular mound
10	Dec 19 (Mon)	Mathematics for stress analyses in 2D
11	Jan 16 (Mon)	Numerical analyses for stress analyses in 2D
12	Jan 23 (Mon)	Granular arch and arching effect
13	Jan 30 (Mon)	Arch action in hopper
14	Feb 6 (Mon)	Pressure on retaining wall
15	Feb 13 (Mon)	Review and practice
	to determine	Examination

\*Oct 10 (Mon): Public holiday, Oct 24 (Mon): Ookayama Campus Festival Clean-up (no classes), Jan 2 (Mon): Public holiday, Jan 9(Mon): Public holiday

Suggested text books: Nedderman, R.M. (2005): Statics and Kinematics of Granular Materials, Cambridge University Press, ISBN: 0-521-01907-9

A classroom for “Advanced Geotechnical Engineering” 13:20-14:50 is changed to Ookayama South Bldg. 6 3rd Floor, Room S636 from October 17 (today). Lecture: Thirapong Pipatpongsa

### Ookayama Campus Map

