

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

Lecturer: Assoc.Prof. Thirapong Pipatpongsa

Semester: Second semester (every year)

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

Class room: Ookayama South Bldg. 6, 3<sup>rd</sup> Floor, Room S637

Synopsis: Theory of 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 methods based on a framework of continuum mechanics are given to silo, hopper, retaining wall, embankment and slope with applications to open-pit mining.

Class schedule:

1	Oct 7 (Mon)	Introduction
2	Oct 21 (Mon)	Stress and strength on a slip plane
3	Oct 28 (Mon)	Mohr-Coulomb failure criterion
4	Nov 6 (Wed)	Rotation of stress components
5	Nov 11 (Mon)	Equilibrium conditions
6	Nov 18 (Mon)	Lamé-Maxwell equations of equilibrium
7	Dec 2 (Mon)	Active arch action in silo
8	Dec 9 (Mon)	Active arch action in hopper
9	Dec 16 (Mon)	Active arch action in retaining wall
10	Dec 23 (Mon)	Active arch action in sand heap
11	Jan 6 (Mon)	Passive arch action in sand heap
12	Jan 20 (Mon)	Pre-test (content No.1-No.6)
13	Jan 27 (Mon)	Passive arch action in inclined channel
14	Feb 3 (Mon)	Passive arch action in undercut slope
15	Feb 10 (Mon)	Undercut technique in open-pit mining
Feb 10 (Mon) 7-8		Final examination, 15:05-16:35 (S637)

Note:

\* Nov 25 (Mon), Jan 16 (Thu): no class

\* Oct 14 (Mon), Nov 4 (Mon), Dec 30 (Mon), Jan 13 (Mon): public holidays