Lecture 3 Name:

**Short questions (1p each, answer not longer than 30 words + figure)**

1. What is the formulation of Mohr-Coulomb model in principal stress space? Give yield surface equation and the elastic law, as well as say whether the flow rule is associated or not. (50 words maximum)

2. How to reformulate the model into triaxial p’-q space? Explain the assumptions and the steps.

3. What is a plastic potential surface? Is it defined in Mohr-Coulomb model?

4. What is the dilation angle? How it affect prediction of the Mohr-Coulomb model?

5. What is the elasto-plastic tangent matrix **D**ep and how is it derived for the Mohr-Coulomb model?

6. How to compute the stress increment in p-q space having the strain increment, assuming Mohr-Coulomb model? Please write an equation and discuss the case for elastic and elasto-plastic increment.

**Long question (10p, write 100-150 words + Figure):**

Basing on critical state soil mechanics concept (see figure above) and taking Mohr-Coulomb failure criterion as valid – explain how the pore pressure in soil is changing in undrained triaxial tests for a) normally consolidated sample and b) for overconsolidated sample. What will happen after the shearing stop?