

TPG4160 RESERVOIR SIMULATION

SPRING SEMESTER 2018

Course content

The course gives the theoretical basis for numerical simulation of fluid flow in petroleum reservoirs. The partial differential equations required for single-phase and multi-phase fluid flow in porous media are developed, as well as numerical methods for solving the equations using finite difference methods. Input data requirements and applications of simulation models for history matching and prediction of field performance will be discussed.

Teachers

Professor Jon Kleppe jon.kleppe@ntnu.no
Assoc. Professor Carl Fredrik Berg carl.f.berg@ntnu.no

Assistant

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Lectures (P13)

Monday 1215-1400 Thursday 1015-1200

Help with exercises (P13)

Monday 0815-1000

Final exam

0900-1300 on June 8

Textbook

- Lecture notes (.pdf) covering most of the topics will be available on the web-page during the semester
- Recommended supplementary text (but not required): Mattax, C.C. and Dalton, R.L.: *Reservoir Simulation*, Monograph Series, SPE, Richardson, TX (1990) **13**

Exercises

Exercises may be obtained from Blackboard or the external the web page, see below . Most exercises will be solved by use of computer; classroom help sessions as listed above. The exercises include derivations of flow equations, some testing of simple simulation models, and use of the commercial simulation model ECLIPSE to investigate flow in reservoir sections. The last few weeks of the semester you will work on a group exercise based on real field data.

Exercises count 25% on the final grade!

Web-pages

Blackboard (internal only)

<http://www.petroleum.ntnu.no/~kleppe/TPG4160> (external)