

PGE 497: CAPSTONE DESIGN PROJECT

The capstone design project provides the petroleum and natural gas engineering students with the opportunity to work on a realistic, industry-related design project. The objective of the capstone design project is to provide the graduating engineer with a smooth transition to the industry through the experience provided by the design project. Groups of students are provided with real data from an oil or gas reservoir, similar to that which would be available to an operator prior to a development decision. Through this exercise, students gain valuable insight into the use of imperfect and incomplete data, to the integration of the various taught components of the course and to problems of group interaction. It is also an opportunity to teach a range of transferable skills such as teamwork, presentation and negotiation. Engineering evaluation of the provided data set using all of the techniques learned in previous courses. Generation of proposals for optimizing operations for the given data set, including engineering design, economic analysis, and if relevant, an assessment of the risk associated with the proposed action.

A typical design project includes several of the following components of petroleum engineering:

- Geological and reservoir characterization.
- Reserves estimation.
- Reservoir modeling and simulation.
- Drilling and well completion design.
- Production optimization.
- Pipeline design.
- Surface facility design.
- Economics and impact on society and environment.

During the project students have access to state-of-the-art computer technology and industry standard software. Several reports must be submitted according to the set time schedule.