PETE 636 Horizontal, Multilateral and Intelligent Wells

Textbook Required: Multilateral Wells
A. D. Hill, Ding Zhu and Michael J. Economides

Course Lecture Schedule

1/19  Introduction, course outline, method of study
      Assignment: Read Chapter 3 and 4

1/21  Horizontal well application, drilling and completion
      Assignment: Read Chapter 5

No class on 1/25

1/27  Horizontal well performance model: Steady State
      Joshi model, Furui model
      Assignment 1: Joshi and Furui’s model for productivity calculation

2/1   Steady-state model discussion

2/3   Horizontal well performance model: Pseudo Steady-State
      Babu and Odeh model

2/8   Geometry parameter effect on well performance
      Assignment 2: Baba and Odeh model for productivity calculation

2/15  Gas well model and two-phase correlation

2/17  Flow in pipe: single phase and two-phase pressure drop
      Assignment 3: Wellbore pressure calculation

2/22  Segment model of horizontal well performance
      Assignment 4: segment model

Project 1 due (30%)

2/24  Horizontal well completion: formation damage model
Horizontal well completion design and selection
Multilateral well applications, junction classification
Assignment 5: field case study (Project 2)
Multilateral productivity calculation

**Midterm (40%)**

- Cross flow and flow control in multilateral wells
- Intelligent completion for optimization: ICD/ICV
- Intelligent completion: monitoring flow
- Reservoir and well optimization by intelligent completion
- Source solution for complex geometry systems

Horizontal well acidizing
Horizontal well acidizing
Horizontal well fracturing: transverse/longitudinal
Horizontal well fracturing: multiple stage placement
Horizontal well fracturing: complex fracture network system

**Project 2 due (40%)**

- Project presentation
- Project presentation

Grading system

- Project 1: 30%
- Midterm: 30%
- Project 2: 40%