

PNGE 632

Reservoir Simulation & Modeling

Course Definition:

[Application](#) of finite-difference equations to multi-phase fluid flow in porous media in two or three dimensions with gravity and capillary pressure effects. Simulation of water-flood performance and enhanced [recovery](#) techniques.

Policy:

- Homework & Projects **35%**
- Tests & Quizzes **40%**
- Final **25%**

- Homework and projects are due at the time specified.
- Late homework or projects: 5% penalty for every class meeting.
- Attendance: **Required**.

Text Book:

"Basic Applied Reservoir Simulation," Ertekin, Abou-Kassem, King.
[Click Here](#) to see this book in SPE store.

Books extensively used during the semester:

"Elements of Reservoir Modeling," S. M. Faruq Ali.

"Petroleum Reservoir Simulation," Aziz, Settari.

[University Social Justice Statement.](#)

[University Disability Policies](#)

Syllabus:

Chapter 1: INTRODUCTION (Week - 1)

Chapter 2: INTRODUCTION TO Builder & IMEX (Weeks - 2,3)

Chapter 3: INTRODUCTION TO Builder & RESULTS (Weeks - 4,5)

Chapter 4: Sensitivity Analysis - CMOST (Weeks - 6 to 9)

Chapter 5: Introduction to the Final Project (Weeks - 10,11)

- Incompressible Flow Equations
 - Field Development Plan
 - History Matching

Chapter 6: Optimization - Uncertainty Analysis (Weeks - 12-14)

Chapter 7: Introduction to WinProp - GEM for CO2 Sequestration Modeling (Weeks - 15)

Problem Sets:

Spring 2005



Set #1

Projects:

Spring 2005



Project #1

Group Performance:

Spring 2005

Projects:



Group 1



Group 2



Group 3