Instructor: Mohammed M. Amro, Associate Professor, Petroleum Engineering.
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2- Drilling and Drilling Fluids, Chilingarian, G.V. and Vorabuter, P., Elservier Science Publishers, 1984, USA.

Prerequisite: PGE 251

Description: Rotary drilling systems, drill string design and drill pipe selection, hoisting system, drilling bits and bit selection, drilling fluids, circulating system, drill bit hydraulics.

Objectives: The course is designed to provide an understanding and a working knowledge in drilling engineering, to use fundamental engineering science principles for well drilling design, and to develop analytical tools based on the engineering concepts for drilling operations.

Topics Covered
Introduction (1 class), System of units, calculation of pressure and temperature gradients. (3 classes), Rotary drilling, rig components, well planning, engineering design (4 classes), Drill string design of conventional drilling, stress analyses(3 classes), Hoisting system, drawworks, blocks, drilling lines, ton-mile calculation. (6 classes), Drilling tools, Bit design and selection. (3 classes), Drilling fluids, mud types, functions, field-testing, treating, lifting capacity, and system design. (4 classes), Circulating system hydraulics, pressure losses and optimization of bit hydraulics. (5 classes)

Classes/Tutorials: Classes are held two times per week in 50 minutes lectures plus one tutorial class of 50 minutes per week.

Evaluation: 10% for Attendance, participation, quizzes and Home works. 40% for two midterm examinations and 50% for the final examination.