

**The University of Tulsa
Petroleum Engineering Department
Course Syllabus**

Course General Information

Number	Title	Credit Hours	Required or Elective
PE4043	Drilling Engineering II	3	Required

Catalog Description

Directional drilling mechanics, drill bit mechanics, drillstring mechanics, wellbore mechanics, Pore and fracture pressure predictions, drilling problems, well planning.

Requisites

Number	Title	Type (Pre or Co)
PE3043	Drilling Engineering I	Pre
PE3013	Computer Applications in Petroleum Engr.	Pre

Requisites by Topics

PE 3043: Rotary Drilling system; Hydraulics;
PE 3013: VB programming methods;

Class/Lab Schedule

This course consists of two class sessions per week. The duration of each class is one hour and fifteen minutes. There is no lab associated with this course.

Textbook and other Required Material

Applied Drilling Engineering, by Adam T. Bourgoyne Jr., Martin E. Chenevert, Keith K. Millheim and F.S. Young Jr., Society of Petroleum Engineers, Richardson, TX, 1991.

Course Objectives

To aid the students in developing an understanding and working knowledge in Directional drilling, Drill bit mechanics, Wellbore mechanics, Drillstring mechanics and Formation pore pressure and fracture resistance; To use fundamental engineering science principles for well drilling design; To develop analytical tools for drilling operations

Main Topics Covered

Rotary Drill Bit, Formation Pore Pressure and Fracture Resistance, Wellbore Mechanics, Directional Drilling and Deviation Control, Drilling Problems, Drillstring Mechanics and Well Planning

Contribution to ABET Program Criteria

ABET Professional Program Criteria are statements describing competencies that students must possess by the time of graduation. The following table summarizes the contribution of this course to the Program Specific Criteria.

Program Specific Criteria	
b	Competency in design and analysis of well systems and procedures for drilling and completing wells

Relationship to ABET Program Outcomes (ABET a-k)

Program outcomes describe what students are expected to know or be able to do by the time of graduation from the Program. The following table summarizes the contribution of this course to the Program outcomes.

a	Ability to apply knowledge of mathematics, science, and engineering
c	Ability to design a system, component, or process to meet desired needs
k	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Contribution to Program Professional Component and to Design Component

Course material and projects of this course use the fundamental science, mathematics and the engineering principles to design drilling systems to meet certain needs. The course contributes to the Program Professional Component and Design Component by applying the fundamental sciences, mathematics and engineering principles.

Person Responsible for Course Syllabus

This syllabus was prepared by Mengjiao Yu

Spring 2008 Information

<i>Instructor:</i>	Dr. Mengjiao Yu	
<i>Class Hours:</i>	Tuesday and Thursday	2:00-3:15 at Kep U1
<i>Office Hours:</i>	Tuesday and Thursday	11:00-12:00 at Kep L123