

**PETE 3036 - Well Logging**  
**Craft and Hawkins Department of Petroleum Engineering**  
**Louisiana State University**  
**Fall 2012**

**Prerequisites:** PETE 2031 (Rock Properties), and either EE 2950 or PHYS 2102.

**Catalog Description: PETE 3036: Well Logging (3).** Qualitative and quantitative formation evaluation by means of electric, acoustic, and radioactive well logs.

**Lecture: E130**

**Time: Lectures: MW 3:30 - 4:50 PM**

**Help Sessions (Not mandatory): will be announced**

**2427 Patrick Taylor Hall (Not mandatory)**

**Instructor: Dr. Dahi**

**Office: 2115** Patrick Taylor Hall, Email: [a\\_dahi@lsu.edu](mailto:a_dahi@lsu.edu)

**Office Hours:** M-W 1:30 – 2:30, or by appointment

**Teaching Assistant:** will be announced

**Textbook**

SPE textbook – Theory, Measurement and Interpretation of Well Logs by Zaki Bassiouni.  
The cost is approximately \$ 90.00.

**Other References**

Basic Well Logging Analysis, published by American Association of Petroleum Geologists.

Copies of the PowerPoint presentations will be posted on the Moodle of the course.

**Objectives:** Impart students with knowledge of conventional well log interpretation including:

- The identification of porous and permeable sands from the SP and Gamma Ray Logs
- The determination of porosity, lithology, and hydrocarbon type from sonic, density, and neutron logs
- An understanding of electrical resistivity in reservoir rocks and its relationship to porosity and water saturation
- The ability to estimate water resistivity from water saturated sands and the SP log
- The estimation of water saturation

**Topics:**

1. Introduction to well logging
2. Gamma Ray Logging
3. Measurement Environment
4. Formation Imaging
5. Sonic Logs
6. Density and Neutron logs
7. Electrical Resistivity
8. Formation Water Resistivity and SP Logs
9. Lithology Determination
10. Gas Bearing Formations
11. Reconnaissance Techniques
12. Digitized Log Interpretation

**General Information:**

There will be homework assigned weekly and discussed, but not graded. There will be help sessions on Tuesday evening at 6:15 to discuss the homework and ask other questions. There will be ten quizzes based on the previous week's homework. In addition, there will be midterm test and a final.

There will be a well logging demonstration by Schlumberger at the well facility, it will be scheduled for the week after ATCE.

Schlumberger will bring a state of the art logging truck and run a gamma ray and Thermal Decay Time (TDT) in one of the wells at the facility. This is an excellent opportunity to observe how an actual well logging operation is conducted. This information will be on the second test. The well logging demo will begin at 09:30, and lunch will be provided. It will last until approximately 1:30. Attendance is the required part of the course.

**Grade Calculation:**

Quizzes	40% (5 quizzes)
Homework	9 %
Popup quizzes	5 %
Midterm Test	20%
Final	25%
Extra Credit for Well Logging Demo	– 1%

**Exam Schedule:** Quizzes on Wednesdays  
Midterm Test: Thursday Oct 11<sup>th</sup>. Starts at 6:00 PM  
Final as determined by the registrar. You may find it in the university catalogue.