

PNGE 450
FORMATION EVALUATION

Course Description

Various well logging methods and related calculations with exercises in interpretation of data from actual well logs. 3 Cr. Hr.

Pre-requisites:

1. PNGE 310: Drilling Engineering
2. EE 221: Introduction to Electrical Engineering (Pre-requisite or Concurrent)

Textbooks

1. Openhole Log Analysis and Formation Evaluation, 2012 Edition, by Richard M. Bateman, publisher: Society of Petroleum Engineers.
2. Schlumberger Interpretation Charts 2009

Course Learning Outcomes

- Student will have an understanding of the fundamental concepts of well log interpretation.
- Student will demonstrate the ability to interpret well logs to in order to make decisions relative to well completion, etc.
- Student will demonstrate the ability to read well logs, apply the necessary environmental corrections, and perform well log interpretations to hydrocarbon bearing formations and communicate the results effectively.
- Student will demonstrate the ability to conduct library and/or internet search and communicate the results through an oral presentation.
- Student will recognize safety issues including handling radioactive sources and perforating guns.

Topics Covered

Week 1 & 2: Log interpretation, fundamental concepts

Week 3 & 4: SP log and applications

Week 5 & 6: Conventional resistivity logs and applications

Week 7 & 8: Acoustic (sonic) log and applications

Week 9 & 10: Gamma ray and caliper logs

Week 11 & 12: Formation density compensation

Week 12: Compensated neutron and side wall neutron porosity logs

Week 13: Litho-density log and applications

Week 13 & 14: Collective applications and interpretation of the above geophysical well logs

Grading

- Quizzes 10%
- Homework 10%
 - Late homework will not be accepted.
- Presentation 10%
- Exam(s) 30%
 - Make-up exam will be given only when there is an excused absence.
 - mid Oct & Final in Dec
- Professional & ethical responsibility 5%

- Final 35%

Emergencies:

In the case of an emergency such as fire alarm, please evacuate the building and gather at least 100 yards away from the building. DO NOT return to the building until the emergency is over and it is cleared by the fire marshal or police.

Attendance Policy

ATTENDANCE IS MANDATORY!!!! Only extenuating circumstances will be excused with the proper documentation. For university-sponsored events, students must inform the instructor at least one week in advance of the absence to be excused and provide a written note from the event sponsor. In the case of illness or family tragedy, the student must contact the instructor within 48 hours of the absence to be excused. For illnesses, written notes from physicians must be presented to be excused.

WVU Social Justice Statement

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and I make appropriate arrangements with the Office of Accessibility Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see <http://diversity.wvu.edu>.

WVU Academic Integrity Statement

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code

http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code.

Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me before the assignment is due to discuss the matter.

You also need to go to the <http://www.libraries.wvu.edu/instruction/plagiarism/> and pass the test (100 percent) and report your passing grade to the instructor.

Calculators may be allowed for use during the exams, depending on the material to be covered. Explicit guidance will be provided before the exam. In any case, use of electronic devices such as PDAs or programmable calculators for storing or communicating material that would not otherwise be available to you during the exam is strictly prohibited, and will result in a failing grade for the course and referral for academic discipline.