CBM003 ADD/CHANGE FORM

☒ Undergraduate Council	or	☐ Graduate/Professional Studies Council
☒ New Course ☐ Course Change 2009		☐ New Course ☐ Course Change
Core Category: None Effective Fall ~~2008~~		Effective Fall __

1. Department: CHE ENG College: ENGR

2. Person Submitting Form: Dr. Michael P. Harold Telephone: 34307 RECEIVED MAR 06 2008

3. Course Information on New/Revised course:
   - Instructional Area / Course Number / Long Course Title:
     PETR / 3315 / Introduction to Well Logging
   - Instructional Area / Course Number / Short Course Title (30 characters max.)
     PETR / 3315 / INTRO TO WELL LOGGING
   - SCH: 3.00 Level: JR CIP Code: 14.2501.00 Lect Hrs: 3 Lab Hrs: 0

4. Justification for adding/changing course: **To provide for new discipline areas**

5. Was the proposed/revised course previously offered as a special topics course? ☐ Yes ☒ No
   If Yes, please complete:
   - Instructional Area / Course Number / Long Course Title:
     ____ / ____ / ____
   - Content ID: _____ Start Date (yyyy3): _____

6. Authorized Degree Program(s): B.S. Petroleum Engineering
   - Does this course affect major/minor requirements in the College/Department? ☒ Yes ☐ No
   - Does this course affect major/minor requirements in other Colleges/Departments? ☐ Yes ☒ No
   - Are special fees attached to this course? ☐ Yes ☒ No
   - Can the course be repeated for credit? ☐ Yes ☒ No

7. Grade Option: Letter (A, B, C ...) Instruction Type: lecture ONLY (Note: Lect/Lab info. must match item 3, above.)

8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title
   ____ / ____ / ____
   - Start Date (yyyy3): _____ Content I.D.: _____

9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
   Cr: 3. (3-0). Prerequisites: PHYS1322, MATH2433, and PETR2311. Co-requisites: PETR3211, PETR3313, & PETR3321. Description (30 words max.): ~~Introduction to~~ 9 modern well logging methods, engineering, and core-log integration.

10. Dean's Signature: Joseph W Tedesco Date: 3/6/08
    Print/Type Name: Joseph Tedesco, Deani

Cullen College of Engine
CBM003 Supplement - *B I*
(New Course)

Must be attached to CBM003 form

Course: PETR 3315
Subject Prefix *Course Number*

1. **Course Title:** Introduction to Well Logging
   Print course inventory screen using RARCAS/CATM and attach.

2. **Pre-requisite/Co-requisite:** PHYS 1322, MATH 2433, and PETR 2311. Co-requisites: PETR3211, PETR3313, & PETR3321.

3. **Rational for Course Format:** Standard University format

4. **Rational for Course Content:** Prepare students for more advanced topics and part of their overall PE education.

5. **ABET Constituents consulted:** Petroleum Engineering Advisory Board, several industry focus groups.

State Course Outcomes: This course teaches the student the tools and techniques for determination and evaluation of petroleum formation properties, as well as the mathematical tools for the analysis and interpretation of data

6. **Course Performance after implementing format and content changes:**[1]

7. **Is course required?** X Yes ☐ No

8. **Required course outline attached?** X Yes ☐ No

9. **Estimated student demand** 50 per semester

10. **Similar courses in other departments:** ☐ Yes XNo
    a. *If yes, list course(s)*

11. **Is course part of a sequence?** X Yes ☐ No
    a. *If Yes, identify the sequence and comment on the relation to prior and subsequent courses: Subsequent course will cover more advanced aspects of the same subject in graduate level*

12. **Textbook(s) and other required materials:** Halliburton Log Analysis and Formation Evaluation and Halliburton Log Interpretation Charts (CD)

[1] Department reports will be requested about the effects of your new course on your curriculum both 12 and 24 months after the effective date for this new course.

Cullen College of Engineer
CBM003 Supplement - *B F*
(New Course)

Note: Special Fees: If special fees requested, **Course Related Fee Request Form will be required.**

Chair of Initiating Dept. Signature	Date	☐ Approved

PETR 3315: Introduction to Well Logging
Credit: 3

Description: Introduction to modern well logging methods, engineering, and core-log integration.

Prerequisites(s): PHYS 1322, MATH 2433, and PETR 2311. Co-requisites: PETR3211, PETR3313, & PETR3321.

Textbook Required: Halliburton Log Analysis and Formation Evaluation and Halliburton Log Interpretation Charts (CD)

Course Objectives: At the end of this course, students will be able to:

1. identify the basic physical principles of the common open hole logging measurements in order to evaluate formation properties.
2. interpret common open hole logging measurements for lithology, porosity, and water saturation estimates and their associated limitation and uncertainties.
3. perform basic wireline log evaluations on a representative, commercial software package.
4. integrate wireline logging data with basic core data in order to assess formation lithology, porosity and permeability.

Topics and Hours

Topic	Class Hrs
Overview, Introduction to Formation Evaluation	3
1. Saturation	3
2. Passive devices	5
3. Acoustic	3
4. Density/ Neutron	3
5. Porosity, lithology	7
6. Resistivity	3
7. Shaly sands	5
8. Core-log integration	5
9. Net pay, resources	2
10. Review	1
11. Final Examination	2
Total Hours	**42**

Method of Evaluation:

Class Participation	20%
Tests	15%
Quizzes	20%
Report	20%
Final Examination	25%
Total	100%

Contributions to Professional Component:

1. Engineering Science and Design: All topics to relate to the application of scientific principles to the solution of formation evaluation problems.

Relationship of Course to Program Outcomes:

Objective	Program Outcome
Identify the basic physical principles of the common open hole logging measurements in order to evaluate formation properties.	An ability to apply knowledge of mathematics, science and engineering. An ability to use the techniques, skills and modern engineering tools necessary for engineering practice.
Interpret common open hole logging measurements for lithology, porosity and water saturation estimates and their associated limitations and uncertainties.	An ability to design and conduct experiments, as well as to analyze and interpret data. An ability to identify, formulate and solve engineering problems. Competency in characterization and evaluation of subsurface geological formations. An ability to deal with the high level of uncertainty in petroleum reservoir problems in problem definition and solution.
Integrate wireline logging data with basic core data in order to assess formation lithology, porosity and permeability.	An ability to apply knowledge of mathematics, science and engineering. An ability to design and conduct experiments, as well as to analyze and interpret data. Competency in characterization and evaluation of subsurface geological formations and their resources using geoscientific and engineering methods. An ability to deal with the high level of uncertainty in petroleum reservoir problems in problem definition and solution.