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 __

RECEIVED MAR 0 6 2008

1. Department: CHE ENG College: ENGR
2. Person Submitting Form: Michael P. Harold Telephone: 34307
3. Course Information on New/Revised course:
   - Instructional Area / Course Number / Long Course Title: PETR / 3362 / Reservoir Engineering I
   - Instructional Area / Course Number / Short Course Title (30 characters max.) PETR / 3362 / RESERVOIR ENGINEERING I
   - SCH: 3.00 Level: JR CIP Code: 14.2501.00 Lect Hrs: 3 Lab Hrs: 0
4. Justification for adding/changing course: ~~To meet core curriculum requirements~~ More accurately reflect course content/level
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
   PETR / 5362 / Reservoir Engineering I
   - Start Date (yyyy3): 20023 Content I.D.: 13077
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
   Cr: 3. (3-0). Prerequisites: PETR 1111, ~~PETR~~ 2311, and PHYS 1321. Description (30 words max.): Rock and fluid properties, PVT behavior of crude oil and natural gas, fundamentals of fluid flow through porous media, reservoir energy
10. Dean's Signature: [redacted] Date: 3/6/08
    Print/Type Name: Joseph Tedesco, Dean

Cullen College of Engineerin
CBM003 Supplement - *B Form*
(New Course)

Must be attached to CBM003 form

Course: PETR 3362
Subject Prefix *Course Number*

1. **Course Title:** Pressure Transient Testing
   Print course inventory screen using RARCAS/CATM and attach.
2. **Pre-requisite/Co-requisite:** PETR 1111, PETR 2311, PHYS 1321.
3. **Rational for Course Format:** Standard university course structure
4. **Rational for Course Content:** Continuation of learning related to petroleum engineering
5. **ABET Constituents consulted:** Petroleum Engineering Advisory Board, Industry focus groups
6. **State Course Outcomes:** students learn the properties, behaviors, and fundamentals of rock and fluids as they relate to reservoir engineering
7. **Course Performance after implementing format and content changes:**[1]
8. **Is course required?** X Yes ☐ No
9. **Required course outline attached?** X Yes ☐ No
10. **Estimated student demand** 50 per semester
11. **Similar courses in other departments:** ☐ Yes X No
    a. *If yes, list course(s)*
12. **Is course part of a sequence?** ☐ Yes X No
    a. *If Yes, identify the sequence and comment on the relation to prior and subsequent courses:*
13. **Textbook(s) and other required materials:** Robert O. Hubbell: *Basic & Applied Reservoir Engineering* and Craft and Hawkins: *Applied Petroleum Reservoir Engineering.*

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

[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 Engineeri
CBM003 Supplement - *B Fo*
(New Course)

[redacted]	2/21/08	☑ Approved
Chair of Initiating Dept. Signature	Date	

PETR 3362: Reservoir Engineering I

Course Description: Rock and fluid properties and interactions, PVT behavior of crude oil and natural gas, fundamentals of fluid flow through subsurface porous media, reservoir energy.

Prerequisites: PETR 1111, PETR 2311, PHYS 1321.

Textbooks:

Robert 0. Hubbell: ***Basic & Applied Reservoir Engineering***
Craft and Hawkins: ***Applied Petroleum Reservoir Engineering***

Course Outline:

1 Introduction and Overview of Reservoir Engineering

2 Reservoir Rock Properties

3 Reservoir Fluid Properties

4 Volumetrics

5 Reservoir Flow Mechanics
- 5.1 Drive Mechanisms
- 5.2 Flow Regimes
- 5.3 Darcy's Law
- 5.4 Flow Geometry
- 5.5 Incompressible & Compressible Flow
- 5.6 Diffusivity Equation and the Point Source Solution
- 5.7 Unsteady State Water Influx

6 Methods of Reserve Estimation
- 6.1 Material Balance
- 6.2 Decline Curve Analysis

7 Complete Volumetrics
- 7.1 Recovery Estimation
- 7.2 Geologic Mapping
- 7.3 Bulk Rock Calculation
- 7.4 Volume in Place
- 7.5 Reserves
- 7.6 Production Projection

8 Gas Condensate Reservoirs
- 8.1 Production Processing
- 8.2 Reservoir fluid Behavior
- 8.3 Reserve Estimation

9 Transient Pressure Analysis

10 Resewoir Simulation Overview