5. Texas A&M University at Qatar

   a. New Course

   **PETE 412. Surface Production Facilities. (3-0). Credit 3.** Overview of separation and treatment of production fluid; fundamentals of gas-liquid separation; design and performance analysis of two- and three-phase separators; oil desalting, sweetening and stabilization; water treatment; overview of gas separation, dehydration and sweetening. Prerequisite: Senior classification or approval of instructor.
TEXAS A&M UNIVERSITY
AT QATAR
TAMUQ
NEW COURSE
Texas A&M University
Departmental Request for a New Course
Undergraduate • Graduate • Professional
• Submit original form and attach a course syllabus.

Petroleum Engineering

PETE 412 - Surface Production Facilities

3. Catalog course description (not to exceed 50 words):
Overview of separation and treatment of production fluid; fundamentals of gas-liquid separation; design and performance analysis of two- and three-phase separators; oil desalting, sweetening and stabilization; water treatment; overview of gas separation, dehydration and sweetening.

4. Prerequisite(s):
Cross-listed with:

Cross-listed courses require the signature of both department heads.

5. Is this a variable credit course?  
   □ Yes  
   ☑ No  
   If yes, from ____ to ____

6. Is this a repeatable course?
   □ Yes  
   ☑ No  
   If yes, this course may be taken ____ times.
   Will this course be repeated within the same semester?
   □ Yes  
   ☑ No

7. This course will be:
   a. required for students enrolled in the following degree programs(s) (e.g., B.A. in history)
   b. an elective for students enrolled in the following degree program(s) (e.g., M.S., Ph.D. in geography)

Bachelor of Science degrees in Petroleum Engineering at Texas A&M University at Qatar only

8. If other departments are teaching or are responsible for related subject matter, the course must be coordinated with these departments. Attach approval letters.

9. Prefix  Course #  Title (excluding punctuation)
    PETE 412  SURFACE PROD FACILITIES
                  LECT  LAB  SCH  CIP and Fund Code  ADMIN. UNIT  ACADEM. YEAR  FICE Code
    03 03 00 03 1 425010006 22 1012 13 003632

Approval recommended by:

Dr. Ken Hall
Department Head - Type Name & Sign
Date

Chair, College Review Committee
Date

Dean of College
Date

Dean of College
Date

Submitted to Coordinating Board by:

Associate Director, Curricular Services
Date

Questions regarding this form should be directed to Sandra Williams at 845-8201 or sandra.williams@tamu.edu
Curricular Services – 3/09
Description: Design and analysis of oil, water, and gas separation and treatment facilities.

Prerequisites(s): Senior classification and approval of instructor.


Professor Information:
Dr. Mohamed Aggour
Office: 213C QENG
Office Phone#: 974.4423.0142
Email: mohamed.aggour@qatar.tamu.edu

Course Meeting Time:
Days: Sunday, Tuesday, and Thursday
Time: 10:00-10:50am
Location: 117 QENG

Topics Covered:
1. Overview of the entire system of surface separation and treatment processes
2. Fundamentals of the separation process
3. Two-phase liquid-gas separators
4. Three-phase oil-water-gas separators
5. Oil desalting
6. Oil sweetening and stabilization
7. Water treatment
8. Gas dehydration
9. Acid-gas removal and treatment

Method of Evaluation:
Major Exams (2) 40% A = 100 – 90
Quizzes 20% B = 89 – 80
Homework 10% C = 79 – 70
Final Exam 30% D = 69 – 60
Total 100% E = 59 and below
Contributions to Professional Component:

<table>
<thead>
<tr>
<th>Math and Science</th>
<th>Application of physics to the separation process</th>
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<tbody>
<tr>
<td>Petroleum Engineering</td>
<td>Provides students with knowledge of the processes and equipment used for separation and treatment of produced fluids. Develop the ability to select the proper type of equipment for specific process; design and analyze the performance of such equipment.</td>
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<tr>
<td>General Education</td>
<td>Equips students with design and problem solving skills.</td>
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</table>

Students Learning Outcomes and Relationship to Program Outcomes

<table>
<thead>
<tr>
<th>Course Learning Outcome: At the end of the course, students will be able to...</th>
<th>Program Outcomes</th>
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<tbody>
<tr>
<td>Explain the fundamentals of the fluid separation process and how it is applied to set the design constraints of separation equipment</td>
<td>1,5,7,10,11</td>
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<tr>
<td>Identify the needed separation and treatment processes for any given field conditions, and select the appropriate type of equipment for each process.</td>
<td>1,3,5,10,11,12</td>
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<tr>
<td>Design the various types of equipment used for separation and treatment.</td>
<td>1,3,5,10,11,12</td>
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<td>Analyze the performance of existing facilities and determine needed changes, if any.</td>
<td>1,5,10,11,12</td>
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<td>Realize potential operating problems, diagnose the problem, and determine appropriate solutions</td>
<td>1,5,7,10,12</td>
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Related Program Outcomes:

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<thead>
<tr>
<th>No.</th>
<th>PETE graduates must have...</th>
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<tr>
<td>1</td>
<td>An ability to apply knowledge of science and engineering.</td>
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<td>2</td>
<td>An ability to design a system, component, or process to meet desired needs within realistic constraints.</td>
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<td>3</td>
<td>An ability to identify, formulate, and solve engineering problems.</td>
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<td>4</td>
<td>An ability to deal with the uncertainty in designing separation and treatment facilities for new field development.</td>
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</table>
Course Topics, Calendar of Activities, Major Assignment Dates

Topics Covered:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Required Reading</th>
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Attendance Policy

Any student with nine (9) or more unexcused absences (equivalent of three class weeks) will automatically receive an F grade.

Make-up policy

The make-up policy for assignments/exams will be in accordance with University Rules (see Rule 7 at http://student-rules.tamu.edu/rule07).

Americans with Disabilities Act (ADA)

Academic Integrity

For additional information please visit: http://aggiehonor.tamu.edu

“An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Prepared by: Mohamed Aggour, November, 2011