

Submit original with signatures + 1 copy + electronic copy to Faculty Senate (Box 7500).
See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

TRIAL COURSE OR NEW COURSE PROPOSAL

SUBMITTED BY:

Department	PETE	College/School	CEM
Prepared by	Jennifer Hedrick	Phone	7734
Email Contact	jehedrick@alaska.edu	Faculty Contact	Dr. Shirish Patil

1. ACTION DESIRED (CHECK ONE):
 Trial Course New Course

2. COURSE IDENTIFICATION:
 Dept **PETE** Course # **101** No. of Credits **3**

Justify upper/lower division status & number of credits:

3. PROPOSED COURSE TITLE: **Fundamentals of Petroleum, Drilling and Production**

4. To be CROSS LISTED? YES/NO
 No If yes, Dept: Course #

(Requires approval of both departments and deans involved. Add lines at end of form for additional required signatures.)

5. To be STACKED? YES/NO
 No If yes, Dept. Course #

Stacked course applications are reviewed by the (Undergraduate) Curricular Review Committee and by the Graduate Academic and Advising Committee. Creating two different syllabi—undergraduate and graduate versions—will help emphasize the different qualities of what are supposed to be two different courses. The committees will determine: 1) whether the two versions are sufficiently different (i.e. is there undergraduate and graduate level content being offered); 2) are undergraduates being overtaxed?; 3) are graduate students being undertaxed? In this context, the committees are looking out for the interests of the students taking the course. Typically, if either committee has qualms, they both do. More info online – see URL at top of this page.

6. FREQUENCY OF OFFERING: **Fall, Spring**
 Fall, Spring, Summer (Every, or Even-numbered Years, or Odd-numbered Years) — or As Demand Warrants

7. SEMESTER & YEAR OF FIRST OFFERING (AY2013-14 if approved by 3/1/2013; otherwise AY2014-15) **201303**

8. COURSE FORMAT:

NOTE: Course hours may not be compressed into fewer than three days per credit. Any course compressed into fewer than six weeks must be approved by the college or school's curriculum council. Furthermore, any core course compressed to less than six weeks must be approved by the core review committee.

COURSE FORMAT: (check all that apply)
 1 2 3 4 5 6 weeks to full semester

OTHER FORMAT (specify)
 Mode of delivery (specify lecture, field trips, labs, etc) **Lecture**

9. CONTACT HOURS PER WEEK: 3 LECTURE hours/weeks LAB hours/week PRACTICUM hours/week

Note: # of credits are based on contact hours. 800 minutes of lecture=1 credit. 2400 minutes of lab in a science course=1 credit. 1600 minutes in non-science lab=1 credit. 2400-4800 minutes of practicum=1 credit. 2400-8000 minutes of internship=1 credit. This must match with the syllabus. See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/guidelines-for-computing/> for more information on number of credits.

OTHER HOURS (specify type)

10. COMPLETE CATALOG DESCRIPTION including dept., number, title, credits, credit distribution, cross-listings and/or stacking (50 words or less if possible):

Example of a complete description:

FISH F487 W, O Fisheries Management

3 Credits Offered Spring

Theory and practice of fisheries management, with an emphasis on strategies utilized for the management of freshwater and marine fisheries. Prerequisites: COMM F131X or COMM F141X; ENGL F111X; ENGL F211X or ENGL F213X; ENGL F414; FISH F425; or permission of instructor. Cross-listed with NRM F487. (3+0)

PETE F101 Fundamentals of Petroleum, Drilling and Production

3 Credits Offered Fall and Spring

Fundamental principles of origin, migration, accumulation and exploration of petroleum. Principles of drilling, drilling practices, and drilling fluids. Overview of production practices, surface production equipment. Influence of rock and fluid properties on the principles of petroleum recovery. Petroleum transportation. Overview of Alaska unconventional hydrocarbon resources, opportunities and impact on the state economy.

Prerequisites: Freshman standing in Petroleum Engineering or permission of instructor.

11. COURSE CLASSIFICATIONS: Undergraduate courses only. Consult with CLA Curriculum Council to apply S or H classification appropriately; otherwise leave fields blank.

H = Humanities [] S = Social Sciences []

Will this course be used to fulfill a requirement for the baccalaureate core? If YES, attach form.

YES: [] NO: [] X []

IF YES, check which core requirements it could be used to fulfill:

O = Oral Intensive, Format 6 [] W = Writing Intensive, Format 7 [] Natural Science, ("X" for Core) Format 8 []

11.A Is course content related to northern, arctic or circumpolar studies? If yes, a "snowflake" symbol will be added in the printed Catalog, and flagged in Banner.

YES [] NO [X]

12. COURSE REPEATABILITY:

Is this course repeatable for credit? YES [] NO [X]

Justification: Indicate why the course can be repeated (for example, the course follows a different theme each time).

[]

How many times may the course be repeated for credit?

[] TIMES

If the course can be repeated for credit, what is the maximum number of credit hours that may be earned for this course?

[] CREDITS

If the course can be repeated with variable credit, what is the maximum number of credit hours that may be earned for this course?

[] CREDITS

13. GRADING SYSTEM: Specify only one. Note: Later changing the grading system for a course constitutes a Major Course Change.

LETTER: [X] PASS/FAIL: []

RESTRICTIONS ON ENROLLMENT (if any)

14. PREREQUISITES

Freshman standing in Petroleum Engineering or permission of instructor. These will be required before the student is allowed to enroll in the course.

15. SPECIAL RESTRICTIONS, CONDITIONS

[]

16. PROPOSED COURSE FEES

Normal UAF Tuition

Has a memo been submitted through your dean to the Provost for fee approval? Yes/No [N/A]

17. PREVIOUS HISTORY

Has the course been offered as special topics or trial course previously?

No

Yes/No

If yes, give semester, year, course #, etc.:

18. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

Petroleum engineering faculty unanimously and strongly believes that combining PETE 103, 104, 205 and 206 into a single 3 credit course will promote better learning and engagement for the students and allow faculty to cover a substantial amount of material during the student's freshman year, keeping the student engaged and giving them the proper foundation for their studies rather than spreading these fundamental knowledge and skills out through their first two years at UAF. This is part of our continuous quality improvement and assessment at program level.

19. LIBRARY COLLECTIONS

Have you contacted the library collection development officer (kljensen@alaska.edu, 474-6695) with regard to the adequacy of library/media collections, equipment, and services available for the proposed course? If so, give date of contact and resolution. If not, explain why not.

No

X

Yes

All materials required for the course will be made available to students via ppt slides uploaded on BB. Additionally, UAF library already has a paid subscription to www.onepetro.org (contains the largest collection of petroleum literature), which students can easily access and download the relevant papers suggested by the instructor. Thus, this more than adequately meets the library collections requirements.

20. IMPACTS ON PROGRAMS/DEPTS

What programs/departments will be affected by this proposed action?

Include information on the Programs/Departments contacted (e.g., email, memo)

Petroleum Engineering will be the affected department and a Bachelor's of Science in Petroleum Engineering will be the affected program.

21. POSITIVE AND NEGATIVE IMPACTS

Please specify **positive and negative** impacts on other courses, programs and departments resulting from the proposed action.

The proposed action will provide better learning environment with a 3 credit class, continuity, and engagement for the students and allow faculty to cover a substantial amount of material during the student's freshman year, keeping the student engaged and giving them the proper foundation for their studies rather than spreading these fundamental knowledge and skills out through their first two years at UAF. This is part of our continuous quality improvement and assessment at program level.

There are no negative impacts.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize course change and new course applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. Use as much space as needed to fully justify the proposed course.


Petroleum engineering department has traditionally offered PETE 103, PETE 104, PETE 205 and PETE 206, four, 1 credit classes in first four semesters of freshman petroleum engineering student degree program. The program enrollment has increased steadily over the past 6 years, with current enrollment almost quadrupled to ~125 students (from 29 students in 2006). Significant part of the enrollment increase is from non-traditional out of state transfer students and students coming from China with UAF 2+2 articulation agreement with China University of Petroleum- Beijing. These changes have caused significant problems in terms of course scheduling as well as students having to wait for a year to take some of these classes.

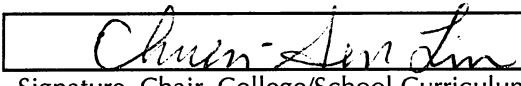
To overcome these problems and allow faculty to cover substantial course material and engage with

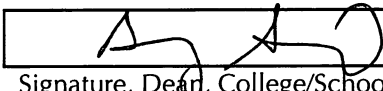
students for a good portion of their freshman year, the department has decided to combine these four courses into one 3 credit class, PETE 101- Fundamentals of Petroleum, Drilling and Production.

This new course, PETE 101 will be offered each fall and spring, which will avoid students having to wait for a year to take a class or stay back in the summer to take a class while jeopardizing their summer internship with companies, so vital for their long-term career opportunities.



APPROVALS: Add additional signature lines as needed.

 Date 11/11/2012
Signature, Chair, Program/Department of: Petroleum Engineering

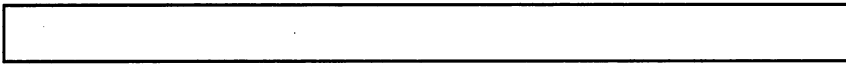

 Date 11/06/2012
Signature, Chair, College/School Curriculum Council for: College of Engineering and Mines

 Date 11/8/12
Signature, Dean, College/School of: CEM

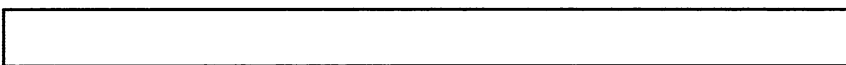
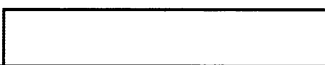
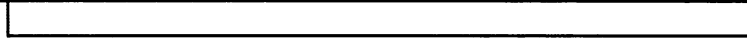
Offerings above the level of approved programs must be approved in advance by the Provost.

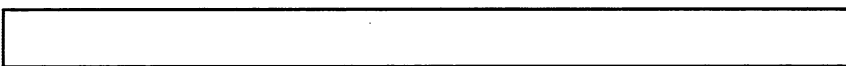
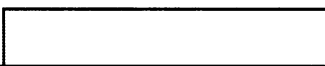
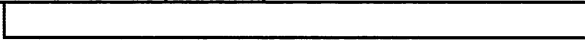
 Date 
Signature of Provost (if above level of approved programs)

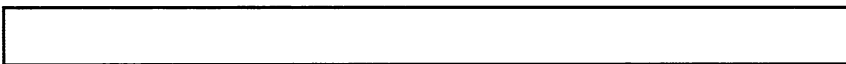
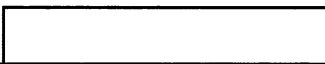
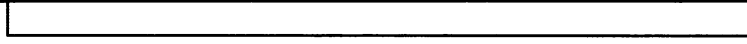
ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

 Date 
Signature, Chair
Faculty Senate Review Committee: Curriculum Review GAAC
 Core Review SADAC

ADDITIONAL SIGNATURES: (As needed for cross-listing and/or stacking)

 Date 
Signature, Chair, Program/Department of: 

 Date 
Signature, Chair, College/School Curriculum Council for: 

 Date 
Signature, Dean, College/School of: 

ATTACH COMPLETE SYLLABUS (as part of this application). The guidelines are online: <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures-/uaf-syllabus-requirements/>
The Faculty Senate curriculum committees will review the syllabus to ensure that each of the items listed below are included. If items are missing or unclear, the proposed course (or changes to it) may be denied.

SYLLABUS CHECKLIST FOR ALL UAF COURSES

During the first week of class, instructors will distribute a course syllabus. Although modifications may be made throughout the semester, this document will contain the following information (as applicable to the discipline):

1. Course information:

Title, number, credits, prerequisites, location, meeting time
(make sure that contact hours are in line with credits).

2. Instructor (and if applicable, Teaching Assistant) information:

Name, office location, office hours, telephone, email address.

3. Course readings/materials:

Course textbook title, author, edition/publisher.
 Supplementary readings (indicate whether required or recommended) and
 any supplies required.

4. Course description:

Content of the course and how it fits into the broader curriculum;
 Expected proficiencies required to undertake the course, if applicable.
 Inclusion of catalog description is *strongly* recommended, and
 Description in syllabus must be consistent with catalog course description.

5. Course Goals (general), and (see #6)

6. Student Learning Outcomes (more specific)

7. Instructional methods:

Describe the teaching techniques (eg: lecture, case study, small group discussion, private instruction, studio instruction, values clarification, games, journal writing, use of Blackboard, audio/video conferencing, etc.).

8. Course calendar:

A schedule of class topics and assignments must be included. Be specific so that it is clear that the instructor has thought this through and will not be making it up on the fly (e.g. it is not adequate to say "lab". Instead, give each lab a title that describes its content). You may call the outline Tentative or Work in Progress to allow for modifications during the semester.

9. Course policies:

Specify course rules, including your policies on attendance, tardiness, class participation, make-up exams, and plagiarism/academic integrity.

10. Evaluation:

Specify how students will be evaluated, what factors will be included, their relative value, and how they will be tabulated into grades (on a curve, absolute scores, etc.) Publicize UAF regulations with regard to the grades of "C" and below as applicable to this course. (Not required in the syllabus, but may be a convenient way to publicize this.)
Faculty Senate Meeting #171:

<http://www.uaf.edu/uafgov/faculty-senate/meetings/2010-2011-meetings/#171>

11. Support Services:

Describe the student support services such as tutoring (local and/or regional) appropriate for the course.

12. Disabilities Services: Note that the phone# and location have been **updated**.

The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials.

State that you will work with the Office of Disabilities Services (208 WHITAKER BLDG, 474-5655) to provide reasonable accommodation to students with disabilities.

8/1/2012

**University of Alaska Fairbanks
Petroleum Engineering Department**

PETE 101 Fundamentals of Petroleum, Drilling and Production

FALL' 2013

Instructor: Shirish Patil
Office: 419 Duckering
Phone/Fax: 474-5127 / 474-5912
E-mail: slpatil@alaska.edu
Office Hours: TBD

General Information

2013-14 Catalog Data

Fundamental principles of origin, migration, accumulation and exploration of petroleum. Principles of drilling, drilling practices, and drilling fluids. Overview of production practices, surface production equipment. Influence of rock and fluid properties on the principles of petroleum recovery. Petroleum transportation. Overview of Alaska unconventional hydrocarbon resources, opportunities and impact on the state economy. **Prerequisites:** Freshman standing in Petroleum Engineering or permission of instructor.

Class Meetings

T-R 3.40 pm- 5.10pm

Reference Book

Non-technical guide to Energy Resources: Availability, use and impact, by: Ben W. Ebenhack (PennWell Publishing Company, Tulsa, OK) 1995.

A Primer of Oilwell Drilling, PETEX, 2008

References

Handouts and articles on different forms of energy and alternative resources will be provided on Blackboard or in class.

Course Objectives

1. For students to gain fundamental understanding of the energy resources, alternative forms of energy with specific emphasis on Alaska.
2. For students to gain, by practical application either by field trips or guest instructors from Alaska's Energy Industry issues involved in planning and developing resources and its potential application.
3. For students to gain, by practical application, the valuable experience of working within a diverse group of individuals that are designated to perform class assigned project.
4. For students to gain, by practical application, valuable experience to develop their presentation skills, and communicate in written, oral and graphical forms.

Course Topics

- Introduction
- Global Energy Demand/Supply
- Renewable Energy Solar Energy, Wind Energy, Nuclear Energy, Coal, and Geothermal Energy
- Alaska Energy Resources: Conventional and Unconventional
- Geological aspects of petroleum reservoirs
- History of oil/gas well drilling
- Overview of rotary drilling operations:
 Drilling rig and its components

Drillstring and the bit
Drilling process

- Logging
- Casing and cementing
- Drilling mud and circulating system
- Well control and other drilling problems
- Introduction to deviated well
- Production practices: an overview
- Formation evaluation
- Completing the well
- Wellbore fluid characteristics
- Well testing
- Production methods
- Improved recovery methods
- Surface production equipment
- Special production problems and workover
- Production facilities – a summary

Computer Use

Use of internet browser search and databases for energy information will be expected (websites of EIA, US Department of Energy and other energy related websites).

Estimated ABET Category Content

Engineering Science: 3 credit or 100%

Course Outcomes

This course is considered to be contributing towards the following educational outcomes set forth by the Petroleum Engineering Department.

OUTCOMES	EC 2000 Criterion (a-k)	ROLE OF PETE 103
1A. Our graduates will have the basic understanding of all the principles traditionally used by PETE's and an appreciation for how and where these are used	a, b, c, e, k	Will provide basic understanding of all forms of energy and associated industries. Fossil fuels vs. renewables
1C. Graduates will demonstrate knowledge of contemporary issues, and will be well prepared for graduate studies or for the work force.	a - k	Will provide understanding of issues related to role of fossil fuels and renewables, prepare students for higher level classes and jobs.
3C. 1. Students will be able to communicate technical information clearly and concisely in both oral and written formats to both technical and non-technical audiences. 2. Students will understand the importance of effective communication and documentation of engineering principles and practice.	g	Will prepare students for technical presentations, improve oral communication skills. Will prepare students by writing project report and presenting it to their colleagues and instructor.
4A. Students will experience the value of synergistically integrating education with work experience.	i,f,g	Will prepare their understandings of classroom information learned by coupling it with fieldtrips and seminars.
4B. Students will participate in student chapter	i	Students will be encouraged to become

activities and in local and national meetings and see the value of these organizations in life-long learning.		members of SPE and participate in activities of SPE.
4C. Students will know how to effectively use the WWW and the library to find information.	i, k	Will prepare students to learn and conduct literature search using the www and libraries.

Attendance and Use of Cell Phone

Regular attendance is mandatory. Use of cell phone in the class is NOT allowed.

Class Format

Class sessions will consist of lecture, discussion, occasional quizzes, midterm examination and a final examination. You are encouraged to ask questions whenever the material is not clear.

Assignments

Late assignments will not earn full credit.

Grading Policy*

Final grades will be based on the following:

Mid-Term Examination	25%
Final Examination	25%
Homework Lessons and quizzes	25%
Team Project report/presentation	25%

	100%

Instructor will use +/- grade system for this course as follows:

A+, A-, A, B+, B-, C+, C, C-, D+, D, D-, F

***IMPORTANT GRADING POLICY INFORMATION**

Implications of the Grade of 'C' (and below) for letter-graded undergraduate courses which are:

- Prerequisites for other courses, or
- Degree major requirements, or
- Core courses

C+ (2.3): Satisfactory to Fair: satisfactory level of performance, with some mastery of material.

C (2.0): Average: satisfactory level of performance and level of competency in the subject. A minimum grade of 'C' (2.0) is required for all prerequisites and major courses.

C- (1.7): Barely satisfactory: Minimum grade required for all Core (X) Courses. A grade of C- (1.7) in a class which is a prerequisite for another class or in a class required for a student's major will result in the student being required to retake the class.

D+ (1.3); D (1.0); D- (0.7): Below Average: Fair to poor level of competency in the subject matter. A grade of D+, D or D- in a Core (X) class will automatically require the student to retake the class to receive core credit, starting Fall 2011.

For additional grading policy information, see the 2012-13 UAF Catalog, pages 46-49.

Disability Services

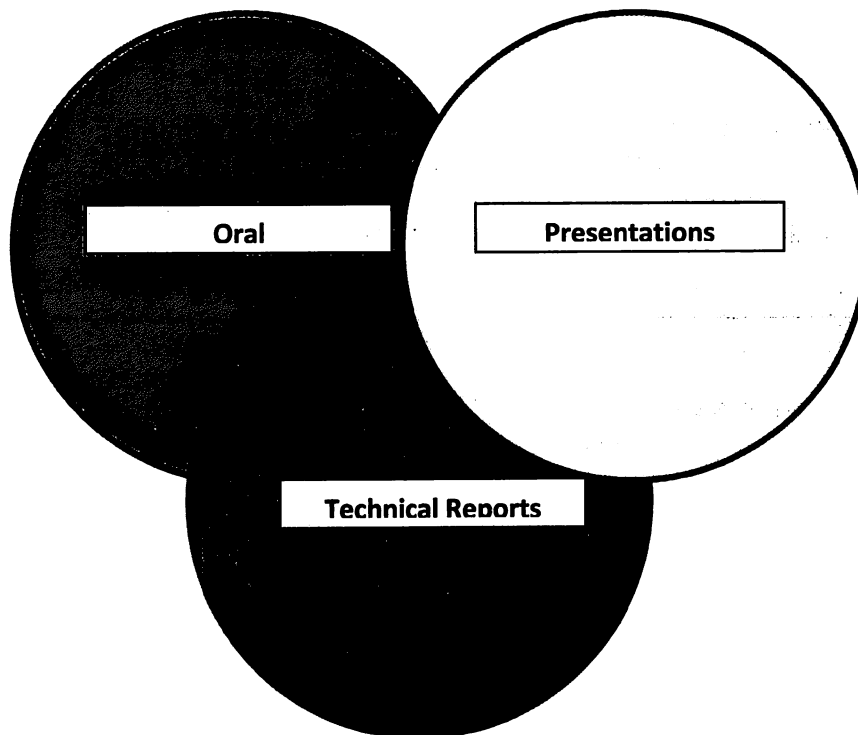
The Office of Disability Services implements the Americans with Disabilities Act (ADA), and insures that UAF students have equal access to the campus and course materials. We will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to students with disabilities.

University of Alaska Fairbanks
Petroleum Engineering Department

Special Class Project
PETE 101: Fundamentals of Petroleum, Drilling and Production
Fall 2013 (December 2012 at CUPB, China)

Instructor: Shirish Patil, Professor of Petroleum Engineering
419 Duckering, 474-5127, slpatil@alaska.edu

Understanding, Oral Communications, and Presentation and Professional/Technical Reporting



- Get to know who your classmates are. ***(September 4)***
- Form team of 5 students by end of the second week of classes ***(September 18)***. Choose a team leader who will communicate with me on behalf of the group
- Choose a team project, which will be based on any of the topics listed in the course outline or others related to Petroleum, oil and gas well drilling, and or production as approved by the instructor. Submit a one page proposal about your selected project: The proposal should cover what your project is going to include and should give a clear view of what the finished project might look like ***(October 5)***
- Your final report and PowerPoint presentations are due electronically by 5pm ***(October 31)***
- ***Each group will make a 15 minute presentation to the entire class, followed by 5-10 minutes Q&A. Attendance is mandatory for all groups for all presentations. The presentations will be on November 6, 13, and 20.***

Prepare and submit the following:

1. A Power point presentation for your selected topic of about 10-12 slides that will describe fundamental information (current state-of-the-art, if appropriate) of “your selected” topic from the course outline or as approved by the instructor. You may use books and internet resources however you must provide references/source at the bottom of each figure/table used. A general outline (use this as a guideline only, you are not limited to the list below) could be along the following lines:

- Introduction
- Basic fundamentals
- Uses, problems, issues etc.
- Environmental impacts of development, if any
- Any additional important issues you may like to add
- Economics
- Conclusions
- List of references cited or bibliography

2. Use clear and good quality figures.

3. **Length of the Report**

The length of the report should be minimum 12 pages. The maximum page limit is 15 pages. Cover page, Table of Contents, List of Figures and List of tables are not to be counted in the 12 page minimum length. All figures, table and pages must be numbered, with captions for all figures and tables. Plagiarism will not be tolerated and will result into severe mark down on your grade.

Your report should include:

- Cover Page
- Table of Contents
- List of Figures
- List of Tables
- Abstract (500 words) (1 page)
- Introduction (1-2 pages)
- Main report (7-8 pages)
- References (no more than 1 page)
- Appendix (if any) (beyond the minimum 12 pages)

4. **Format Requirements**

Your report has to be written in Microsoft Word:

Font styles Arial, font size of 11, 1.5 line spacing, 1” margin on all sides

5. There will be a group presentation to the class by each group (dates to be announced)

Project Evaluation Scoring Rubric

PETE 101- Fall 2013- Project Presentation and Review Scoring

The students have formed teams of 4 to 6 students working together. They selected a topic related to fundamentals of petroleum, drilling or production, conducted literature search and compiled the information they found, in a written report and have prepared a power point presentation, which was presented to other colleagues, teaching assistant and the instructor. This is a freshman, 3 credit class and the emphasis was not only on the contents, but also on ability to conduct literature review, work in teams and come up with deliverables in less than one month.

EVALUATOR:

Presentation Topic:

TEAM MEMBERS:

	20-30%	30-40%	40-50%	50-60%	60-70%	70-80%	80%+
Students have the basic understanding of the subject matter							
Knowledge of Contemporary Issues							
Team Work							
Communication Skills							
Writing skills							
Literature Review							