
The University of Tulsa
Petroleum Engineering Department
Course Syllabus

Course General Information

Number	Title	Credit Hours	Required or Elective
PE 4071	Production Engineering Lab	1	Required

Catalog Description

Experiments on metering, multiphase flow in pipes and separation.

Requisites

Number	Title	Type
PE 3073	Production Engineering I	Prerequisite

Pre-requisites by Topics

Inflow performance relationship, single and multiphase flow in pipes, components of production system, basic design of artificial lift system, and analysis and optimization of production systems.

Class/Lab Schedule

Two tests every three weeks and the duration of each lab session is about 1 hour.

Textbook and References

Hand-outs and technical papers distributed by instructor or teaching assistant.

Course Objectives

The objective of the Production Engineering Lab is to let the students through experiments observe the fluid flow phenomena related to petroleum production. During the lab the student can develop a solid understanding of the basic principles of multiphase flow in pipes, separation, metering and pumping and how to apply these principles to production system design and optimization.

Main Topics Covered

The main topics to be covered include: Laboratory report writing; Measurement uncertainty; Metering; Flow pattern and pressure drop; Separation; ESP.

Contribution to ABET Professional Program Criteria

ABET Professional Program Criteria are statements describing competencies that students must possess by the time of graduation. This course contributes to the following Program Specific Criteria.

Program Specific Criteria	
a	Competency in mathematics through differential equations, probability and statistics, fluid mechanics, strength of materials, and thermodynamics.
d	Competency in design and analysis of systems for producing, injecting, and handling fluids

Relationship to Program Outcomes

Program outcomes describe what students are expected to know or be able to do by the time of graduation from the Program. This course contributes to the following Program outcomes.

a	Ability to apply knowledge of mathematics, science, and engineering.
e	Ability to identify, formulate, and solve engineering problems.
k	Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
1	Obtain basic and in depth knowledge of design principles in each area of petroleum engineering – drilling, production and reservoir and be aware of their interdependence.

Contribution to Program Professional Component and to Design Component

Course material and projects in this course use the basic sciences, mathematics, and the engineering principles to analyze the physical processes in metering, multiphase pipe flow, pumping and separation. This course contributes to the Program Professional Component by providing a connection of the basic sciences, mathematics and engineering principles from previous courses with the applications in petroleum production through experiments preparing the student for engineering practice.

Person Responsible for Course Syllabus

This syllabus was prepared by Holden Zhang on August 14, 2007.

Fall 2007 Information

<i>Instructor:</i>	Dr. Hong-Quan (Holden) Zhang, North Campus Drill Building (NCDB) 108 Tel.: 631-5142 E-mail: hong-quan-zhang@utulsa.edu
<i>Teaching Assistants:</i>	Erhan Aslan (erhan-aslan@utulsa.edu) Tingting Yu (tingting-yu@utulsa.edu)
<i>Lab Hours:</i>	TBA
<i>Office Hours:</i>	TTH 1:15 - 3:15pm , KEP L119
<i>Grading:</i>	Pre-quizzes 15% Post-quizzes 25% Lab report 30% Lab participation 5% Final test 25%

POLICY ON ACADEMIC MISCONDUCT

The policy in this class on academic misconduct will follow that stated in:

*Policies and Procedures Relating to Academic Misconduct
in the College of Engineering and Applied Sciences.*

Any action by the instructor on a specific instance of alleged academic misconduct can be appealed by the student involved to the Review Board for Cases of Academic Misconduct if he/she so desires.

Any student detected cheating on an examination will receive a grade of zero on the examination for the first offense and a grade of F will be given for the course if there is a second offense. If another student is involved in the offense knowingly, he will receive the same penalty.

Any student detected copying homework, or allowing his or her homework to be copied, will receive a zero grade for that homework. Repeated offenses will result in an F grade in the course.

In the event that the instructor awards an F grade in the course because of academic misconduct, he will so notify the Review Board and will recommend to them that if the student has been involved in similar cases that the student be dismissed from the University.

POLICY ON ABSENCES

Although attendance is not required, it is clear that attendance is desirable because a good deal of the factual information conveyed (which may be covered in the exams) is passed on in class. Furthermore, class discussion of regularly assigned homework enhances a student's understanding. In case of a final grade that is borderline, attendance will be considered as a deciding factor.

Absence at examination time is excusable only in case of illness of the student or a similar emergency. A written doctor's statement is necessary in case of an illness that requires makeup of an exam. An unexcused absence from an exam will result in a zero grade on that exam.