2023학년도 1학기 강의계획안 (Syllabus)

교과목명 Course Title	Fundamentals on Petroleum and Gas Engineering (석유가스공학통론)	학수번호 -분반 Course No.	G17674
개설전공 Department/Major	Climate and Energy Systems Engineering (기후.에너지시스템공학전공)	학점/시간 Credit/Hours	3.0 / 3.0
수업시간/강의실 Class Time/ Classroom	Monday 8, 9 / Research Cooperation Building B109 (연구협력관 B109)		
담당교원 Instructor	Name : Baehyun Min (민 배 현)	Department: Climate & Energy Systems Eng. (기후.에너지시스템공학전공)	
	E-mail: bhmin01@ewha.ac.kr Webpage: http://energy.ewha.ac.kr	Phone: 02-3277-6946	
면담시간/장소 Office Hours/ Office Location	Hours: Please make an appointment via email or cyber campus Location: Research Cooperation Building Office #404 (연구협력관 404호)		

Ⅰ. 교과목 정보 Course Overview

1. 교과목 개요 Course Description

본 교과목은 석유공학, 그 중에서도 저류공학 분야의 기본 이론(예: 압력-부피-온도 분석, 물질평형방정식, 환형 유동 방정식, 유정 시험)을 다룬다. 각 학생들은 학기말 저류공학과 관련된 프로젝트 발표를 수행하여야 한다.

This class covers fundamentals of petroleum reservoir engineering including PVT analysis, material balance, radial flow equations, and well testing. Each student is encouraged to give a term project presentation related to reservoir engineering.

2. 선수학습사항 Prerequisites

It is recommended to take the undergraduate course "Introduction to Energy Resources (자원공학개론)" as a prerequisite, but not mandatory.

3. 강의방식 Course Format

강의 Lecture	발표/토론 Discussion/Presentation	실험/실습 Experiment/Practicum	현장실습 Field Study	기타 Other
80%	20%	-	-	-

(위 항목은 실제 강의방식에 맞추어 변경 가능합니다.)

강의 진행 방식 설명 (explanation of course format): Powerpoint, Writing on the Whiteboard, & Simulation Exercises

4. 교과목표 Course Objectives

The course aims at encouraging students to learn the following fundamentals in Reservoir Engineering:

- Basic concepts in reservoir engineering
- PVT analysis
- Material balance

- Darcy's law and applications
- Radial flow equations
- Radial diffusivity equations and applications
- Real gas flow
- Natural water influx
- Immiscible displacement
- Review of core papers
- Presentation of class projects

5. 학습평가 방식 Evaluation System

☐ Relative evaluation ☑ Absolute evaluation ☐ Others : _____

- Explanation of evaluation system:

(아래 항목은 실제 학습평가방식에 맞추어 변경 가능합니다.)

- **절대평가 (Absolute Evaluation)**
- **지각 1회 = 결석 0.5회. 지각 여부는 수업 시작시간을 기준으로 함.**
- **결석 3회 이하는 최종 성적에 영향 없음**
- **결석 3회 초과부터는 결석 1회당 최종 성적에서 2점씩 감점 (지각은 1회당 0.5점 감점)**
- **결석 10회 초과는 F 학점 부여**

"Relative Evaluation" is the evaluation system of this course. You are encouraged to attend all class sessions. If you have any situation which prevents you from attending class (e.g., illness, family or personal issues, etc.), please let me know your absence via email or message at the Cyber Campus before class in advance. Three or fewer absences do not affect your grade. If you miss four days or more, however, every absence from the fourth absence deducts two points from your final score. Two late arrivals are equal to one absence. More than ten absences will force you to be given F grade by the university regulation.

중간고사 Midterm Exam	기말고사 Final Exam	퀴즈 Quizzes	발표 Presentation	리포트 Report	과제물 Assignments	참여도 Participation	기타 Others
35%	40%	%	15%	%	10%	%	%

* Evaluation of group projects may include peer evaluations.

II. Course Materials and Additional Readings

1. 주교재 Required Materials

Dake, L.P., 1978. Fundamentals of Reservoir Engineering, Elsevier.

2. 부교재 Supplementary Materials

강주명, 2008. 석유공학개론-개정판, 서울대학교 출판부

3. 참고문헌 Optional Additional Readings

III. 수업운영규정 Course Policies

* For laboratory courses, all students are required to complete lab safety training.

Ⅳ. 주차별 강의계획 Course Schedule

Week	Date	Topics & Class Materials, Assignments (주요강의내용 및 자료, 과제)
1주차	3.6. (Mon)	Ch. 1. Some Basic Concepts in Reservoir Engineering
2주차	3.13. (Mon)	Ch. 2. PVT Analysis for Oil
3주차	3.20. (Mon)	Ch. 3. Material Balance Applied To Oil Reservoirs
4주차	3.27. (Mon)	Ch. 4. Darcy's Law and Applications
5주차	4.3. (Mon)	Ch. 5. The Basic Differential Equation for Radial Flow in a Porous Medium Ch. 6. WellInflowEquationsforStabilizedFlowConditions
6주차	4.10. (Mon)	Ch. 7. The Constant Terminal Rate Solution of the Radial Diffusivity Equation and Its Application to Oilwell Testing
7주차	4.17. (Mon)	Ch. 7. The Constant Terminal Rate Solution of the Radial Diffusivity Equation and Its Application to Oilwell Testing
8주차	4.24. (Mon)	Midterm Examination
9주차	5.1. (Mon)	Ch. 8. Real Gas Flow: Gas Well Testing
10주차	5.8. (Mon)	Ch. 8. Real Gas Flow: Gas Well Testing
11주차	5.15. (Mon)	Ch. 9. Natural Water Influx
12주차	5.22. (Mon)	Ch. 10. Immiscible Displacement
13주차	5.29. (Mon)	Ch. 10. Immiscible Displacement
14주차	6.5. (Mon)	Term Project Presentation
15주차	6.12. (Mon)	Final Examination
보강1 (필요시) Makeup Classes	(요일, 장소)	TBD
보강2 (필요시) Makeup Classes	(요일, 장소)	TBD

Ⅴ. 참고사항 Special Accommodations

* 학칙 제57조에 의거하여 장애학생은 학기 첫 주에 교과목 담당교수와의 면담을 통해 출석, 강의, 과제 및 시험에 관한 교수학습지원 사항을 요청할 수 있으며 요청된 사항에 대해 담당교수 또는 장애학생지원센터를 통해 지원받을 수 있습니다.

According to the University regulation #57, students with disabilities can request special accommodation related to attendance, lectures, assignments, and/or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' requests, students can receive support for such accommodations from the course professor and/or from the Support Center for Students with Disabilities (SCSD).

*** 강의계획안의 내용은 추후 변경될 수 있습니다.**

* The contents of this syllabus are not final—they may be updated.