



# 2024학년도 1학기 강의계획안 (Syllabus)

Course Title	Energy Production Systems (에너지생산시스템)	Course No.	G17702
Department/ Major	Climate and Energy Systems Engineering (기후.에너지시스템공학전공)	Credit/Hours	3.0 / 3.0
Class Time/ Classroom	Class Time: Wednesday 8, 9 (6:30 pm - 9:30 pm) Classroom: Research Cooperation Bldg. B109 / 연구협력관 B109)		
Instructor	Name : Baehyun Min (민 배 현)	Department (소속): Climate & Energy Systems Engineering	
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Office Hours/ Office Location	Hours: Please make an appointment via email or cyber campus Location: Office #404 at the Research Cooperation Building (연구협력관 404호)		

## I. 교과목 정보 Course Overview

### 1. 교과목 개요 Course Description

본 교과목은 석유가스공학 분야에서 저류층에서 생산된 다상유체(오일, 가스, 물)의 생산관 및 수송관 내에서 발생하는 유체유동 분석에 관한 이론을 학습하고, 수학 및 컴퓨터 모델을 활용하여 유체 유동을 모사한다.  
This course aims at providing skills in the development and use of mathematical and computer models for flow through the various parts of an oil and gas production system.

### 2. 선수학습사항 Prerequisites

N/A

### 3. 강의방식 Course Format

강의 Lecture	발표/토론 Discussion/Presentation	실험/실습 Experiment/Practicum	현장실습 Field Study	기타 Other
60%	20%	20%		-

(위 항목은 실제 강의방식에 맞추어 변경 가능합니다.)

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

### 4. 교과목표 Course Objectives

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

- Basic concepts in reservoir engineering
- Properties of Reservoir Fluids
- Single-Phase Flow in Wells and Pipelines



- Multiphase Flow in Wells and Pipelines
- Flow Through Restrictions
- Inflow Performance
- Well Performance
- Pipeline Flow Simulation

5. 학습평가방식 Evaluation System

중간고사 Midterm Exam	기말고사 Final Exam	발표 Presentation	리포트 Report	과제물 Assignments	참여도 Participation	기타 Others
30%	30%	20%	%	20%	0%	%

(위 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 5회 초과는 F 학점 부여

“Absolute 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, one absence deducts two points from your final score. Two late arrivals are equal to one absence. More than five absences will force you to be given F grade by the university regulation.

II. 교재 및 참고문헌 Course Materials and Additional Readings

1. 주교재 Required Materials

Jan-Dirk Jansen, 2017. Nodal Analysis of Oil and Gas Production Systems. Society of Petroleum Engineers.

2. 부교재 Supplementary Materials

강주명, 2008. 석유공학개론-개정판, 서울대학교 출판부  
 Dake, L.P., 1978. Fundamentals of Reservoir Engineering, Elsevier.

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. (Wed)	Overview
2주차	3.13. (Wed)	Basic Concepts in Reservoir Engineering
3주차	3.20. (Wed)	Properties of Reservoir Fluids
4주차	3.27. (Wed)	Single-Phase Flow in Wells and Pipelines
5주차	4.3. (Wed)	Multiphase Flow in Wells and Pipelines
6주차	4.10. (Wed)	Flow Through Restrictions (Video Lecture due to General Election)
7주차	4.17. (Wed)	Inflow Performance: The Basics
8주차	4.24. (Wed)	Inflow Performance: Further Topics
9주차	5.1. (Wed)	Well Performance
10주차	5.8. (Wed)	Midterm Examination
11주차	5.15. (Wed)	Pipeline Flow Simulation (Video Lecture due to National Holiday)
12주차	5.22. (Wed)	Pipeline Flow Simulation
13주차	5.29. (Wed)	Pipeline Flow Simulation
14주차	6.5. (Wed)	Term Project Presentation
15주차	6.12. (Wed)	Final Examination
보강1 (필요시) Makeup Classes	(요일, 장소)	TBD
보강2 (필요시) Makeup Classes	(요일, 장소)	TBD



### V. 참고사항 Special Accommodations

\* According to the University regulation section #57-3, students with disabilities can request for special accommodations related to attendance, lectures, assignments, or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' request, students can receive support for such accommodations from the course professor or from the Support Center for Students with Disabilities (SCSD). Please refer to the below examples of the types of support available in the lectures, assignments, and evaluations.

(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.)

Lecture	Assignments	Evaluation
<ul style="list-style-type: none"> <li>. Visual impairment : braille, enlarged reading materials</li> <li>. Hearing impairment : note-taking assistant</li> <li>. Physical impairment : access to classroom, note-taking assistant</li> </ul>	<p>Extra days for submission, alternative assignments</p>	<ul style="list-style-type: none"> <li>. Visual impairment : braille examination paper, examination with voice support, longer examination hours, note-taking assistant</li> <li>. Hearing impairment : written examination instead of oral</li> <li>. Physical impairment : longer examination hours, note-taking assistant</li> </ul>

- Actual support may vary depending on the course.

\* The contents of this syllabus are not final—they may be updated (강의계획안의 내용은 추후 변경될 수 있습니다).