

Syllabus

Mathematical Methods for Energy Problems

Course Name	Course type (credit/hours)		전선(3/3)		Course code	
	Target students Division/major/grade		에너지시스템 학과/6학년		Opening semester	2017년 1학기
	Class time and classroom		수5(전101) 수6(전101) 수7(전101)(전101)			
Reference to this course	Related basic courses					
	Recommended concurrent courses					
	Related advanced courses					
Instructor	Name (title/division)					
	Office Room Number		Office phone Number	2689	e-mail	suduk@ajou.ac.kr
	Office hours		Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

Course Overview

This course designed to teach the advanced application of mathematical theory in energy field. Energy issues are modeled with the methodologies of linear systems, partial differential equation. numerical analysis, probability and statistics. Mathematical knowledge and skills will be taught to identify the energy problems. The faculty of Energy Studies will teach this course with the concept of co-operating nuclear power systems, energy conversion systems, energy policy systems to deliver the knowledge of economic and practical method when dealing with the real energy problems.

2. Course Objectives

3. Class types and activities

4. Teaching Method

5. Knowledge and ability required for taking this course

6. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance			
midterm exam		40	
final exam		40	
quiz			
presentation			
discussion			
homework			
etc		20	출석, 보고서, Quiz, 세미나

7. Textbooks

Main/Sub	Title	Writer	Publisher	Publication year
참고자료	Mathematical Methods of Physics	Fon Mathews and R.L. Walker	W.A.Benjamin, Inc.	
참고자료	Numerical Methods of Reactor Analysis	M. Clark, Jr. and K.F.Hansen	Academic Press 3. D. Kececloglu, Reliability Engineering Handbook, Prentice Hall	

8. Lecture Schedule

Week	Lecture contents	Lesson type	Remark
1	Probability & Expectation		
2	Important distributions and the derivation of t-statistics		
3	Statistical Estimation of Confidence Level"		
4	Hypothesis Test and Its Application (1)		
5	Hypothesis Test and Its Application (2)		
6	Simple and multiple regression modeling		
7	Application of regression models		
8	Mid-term Exam		
9	최적화 및 수리계획 기초 Introduction		
10	"선형계획법의 기초이론 Linear Analysis"		
11	"Simplex법 simplex AlgorithmS"		
12	쌍대이론 및 해석		
13	유한차분법 및 응용 Finite Difference Analysis		
14	"유한차분법 및 응용 Finite Difference Analysis"		
15	"유한차분법및응용 Partial Differential Equation Solver"		
16	"기말고사 Final Exam"		

9. Others

--