Class Syllabus

화공수학특론 (Advanced Chemical Engineering Mathematics)

Professor	Name	Chee Bum Shin	Course	Target Student	Department	Chemical Engineering
	Position	Professor				
	Department	Energy System			Major	Chemical Engineering

1. Overview of the Subject

It learns mathematical techniques necessary to interpret various systems targeted by chemical engineering.

2. Overview of Teaching Method

강의를 위주로 수업을 진행하며, 시험, 과제 및 term project를 통하여 학생들의 학업성취도를 측정한다.
- Mathematical methods to analyse chemical engineering systems will be covered in lectures and the homeworks will be assigned to illustrate how to apply the methodologies in the analysis and design of energy systems.
- Examinations will be given to evaluate the understanding of students on the main concepts of the course.
- Term project will be performed to develop the skills to apply the mathematical methods to practical problems.

3. Grading

시험 60%, 과제 20%, term project 20%
Examinations 60%, Homeworks 20%, Term Project 20%

4. Textbook and References

	Title	Author	Publisher	Year
Texbook	The Finite Element Method	T.J.R. Hughes	Prentice-Hall	1987

5. 수업 진도 계획

Week	Content	Method	Note
1	One-Dimensional Problems	Lecture	
2	Strong Form	Lecture	
3	Weak Form	Lecture	
4	Galerkin Form	Lecture	
5	Matrix Form	Lecture	
6	Piecewise Linear Finite Element Functions	Lecture	
7	Element Concept	Lecture	
8	Mid-term Exam	Exam	
9	Two or Thre-Dimensional Problems	Lecture	
10	Data Processing Arrays	Lecture	
11	Bilinear Quadrilateral Element	Lecture	
12	Trilinear Hexahedral Element	Lecture	
13	Higher-Order Elements	Lecture	
14	Numerical Integration	Lecture	
15	Derivatives of the Shape Functions	Lecture	
16	Final Exam	Exam	

6. Others