강의계획서

년도	2018	학기	1학기	학수번호	CHEB305	분반	01
개설학과	화학공학과					학점	3-0-3
과목명	반응공학					이수구분	전공필수
선수과목							
강의시간	월 수 (09:30 ~ 10:45) -환경공학동 강의실 [112호]						

담당교수	김원배	소속	화학공학과
E-Mail	KIMWB@POSTECH.AC.KR	Homepage	HTTP://CELAB.POSTECH.AC.KR
연구실		연락처	054-279-2397
Office Hours			

강의목표

Chemical Reaction Engineering deals with systems within which chemical reactions are occurring, concentrating on trying to define the size of reactor required for a specified duty and the desirable flow mixing pattern which should be promoted within the reactor. It does neither concern itself with the materials from which the reactor should be made, nor the thickness of its walls for instance. Reactor design utilizes knowledge of thermodynamics, fluid mechanics and chemical kinetics, coupled of courses with an economic assessment of whether the proposed design is financially attractive. This course will enable ChE students to develop a clear understanding of the fundamentals of chemical reaction engineering. The goal will be achieved by presenting a course material that allows the students to solve reaction engineering problems through reasoning rather than through memorization and recall of numerous equations and the restrictions and conditions for reactor design.

강의선수/수강필수사항

Undergraduate Thermodynamics

성적평가

Final grading will be done on an absolute basis.#

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Grading:#

Mid exam I 30%/Final exam 30%#

Quiz I & II 14%#

Home works (7 sets) 21%/Attendance 5%#

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All exams will be open book and open note. Make-up exam. will be given only by prior arrangement and only with valid reason. University policy states that anyone giving or receiving information during an exam. will be given an immediate failing grade for the course.#

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Homework assignments will generally be given on a weekly basis. Homework will be collected on Monday. Late homework will not be accepted for any reason and will be given a grade zero. Professional collaboration on homework among students is allowed. However, outright copying is considered cheating and will result in a zero grade.

강의교재

도서명	저자명	출판사	출판년도	ISBN

참고문헌 및 자료

H. Scott Fogler, “Elements of Chemical Reaction Engineering”, 4th Ed., Pearson, 2014#
#
J.M. Smith, "Chemical Engineering Kinetics", 3rd Ed., McGraw-Hill, 1981 and G.F. Froment and K.B. Bischoff, "Chemical Reactor Analysis and Design", Wiley, 1990

강의진도계획

(see ChE305 course syllabus)#
1. Mole balances and Reactors (2 Lectures)#
-Chapter 1#
2. Conversion and Reactor sizing (2 Lectures)#
-Chapter 2#
3 Rate Laws, Reaction mechanism and Stoichiometry (3 Lectures)#
-Chapter 3 #
4. Isothermal Reactor Design (5 Lectures)#
-Chapter 4#
5. Collection and Analysis of Rate Data (2 Lectures)#
-Chapter 5#
Review (1 Lecture)#
Midterm Exam#
6. Multiple Reactions (3 Lectures)#
-Chapter 6#

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7. Steady State Nonisothermal Reactor Design (6 Lectures)#
-Chapter 8#
8. Unsteady State Nonisothermal Reactor Design (3 Lectures)#
-Chapter 9#
Review (1 Lecture)#
Final Exam

수업운영

학습법 소개 및 기타사항

EXTRA CREDIT - No extra credit projects will be accepted to "boost" one's grade.#
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LECTURE ATTENDANCE - Lecture attendance may not be mandatory. The student, however will be responsible for all lecture and handout materials.