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Course Syllabus of CHE 351
FLUIDIZATION ENGINEERING
FALL 2000

Instructor: Dr. H. O. Kono
Office: ESB 427 Office Phone 293-2111 ext 2421
CRN: 85065
Class Time: MWF 11:00-11:50
Room: 449 ESB

Course Objective:

Fluidization Engineering has been playing major roles in chemical, petroleum, and petro-chemical engineering in terms of reactors, combustors and other process units. However, the utilization of this technology has not basically been well understood and there remains many unsolved problems in terms of theory, experimental technique and their applications. A very comprehensive graduate course will be provided based upon the instructor's long years of research and industrial experience, including the basic science of fluidization phenomena, fluidization reactor and process design and new application.

Reference and Text:

Although some classical text books are available, none of these can cover the topics in a single text book. Therefore, most up-dated reference materials from books and journal papers will be distributed as hand-out in the class. As classical reference books, e.g. "Fluidization Engineering", 2nd edition, by Kunii & Levenspiel, Butterworth-Heinemann (1991), and "Fluidized Particles", by Davidson & Harrison, Cambridge UP (1963), "The Dynamics of Fine Powders" 1990 by K. Rietema. etc will partially be used. With respect to recent modern Fluidization Science and Engineering, selected papers from Journals and Symposium Proceedings will be distributed before class.

Topics:

1. Fluidization, Past and Tomorrow in View of Science and Technology
2. Fundamental Principles of Fluidization: Significance and Limitation
3. Application of Fluidization Process to Various Chemical Industries: Its Success and Failure
4. Problems of the Limitation of Application of Classical Fluidization Engineering
5. Novel Powder Rheological Approach and Model to Characterize Fluidization
6. Finding of New Phenomena and Potential New Application to Advanced Material Science and Energy Technology

Grading Policy:

Midterm Exam	20%
Home Work	20%
Literature Review	20%
Term Paper	20%
Final Exam	20%