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	(영문)	advanced_heat_transport, phenomena, two-phase_flow_and_heat_transter_engineering					
1. Goal	Advanced heat transport phenomena in various engineering are based on the two-phase flow which is extremely complicated and non-equilibrium. However, the precise understanding of two-phase flow is important to design the system and analyze the safety in industries including nuclear power plants. Thus, with bases of system heat transfer in the undergraduate class, in-depth study for two phase flow technology and boiling heat transfer will be implemented. Practice will be applied in plant system design as well as accident analysis. Especially it approaches a more practical field like a condensation and critical flow analysis. Moreover the state-of-art technology for two- phase flow measurement will be introduced.						
2. Contents	I. Introduction II. Bubble Dynamics (1) Fundamental Mechanism (2) Nucleation Criteria (3) Bubble Growth Dynamics III. Boiling Heat Transfer (1) Pool Boiling Heat Transfer • Pool Boiling Regimes • Burnout in Pool Boiling (2) Forced Convection Boiling Heat Transfer • Burnout in Forced Convection Boiling • Post-Boiling Transition Forced Convection IV. Two-Phase Flow (1) Basic Definition (2) Drift-Flux Model (3) Two-Fluid Model (4) Subcooled Boiling Model (5) Two-Phase Pressure Drop V. Condensation (1) Drop/Filmwise Condensation (2) Parametric Effects on Condensation VI. Critical Flow (1) Equilibrium Model (2) Non-equilibrium Model (3) Parametric Effects on Critical Flow VII. Two-Phase Measurement (1) Scaling of Two-Phase Flow (2) Void Fraction (3) Vapor Velocity (4) Pressure Drop						
3. 평가	Homework(40% + a), Mid-term examination (30%), Final exam (30%)						
4. Textbook	A.Mostafa Ghiaasiaan, Two-phase Flow, Boiling, and Condensation, Cambridge University Press (2017).						