

Course No.	M2794.012400	Lecture No.	001	Course Title (Subtitle)	Multiphase Flow (null)	Credit	3	
Representative Instructor	Name	Park, Hyungmin (post : Associate Professor)		Homepage				
	E-mail	hminpark@snu.ac.kr		Phone No.	02-880-4159			
	Interview Time/Place : Office Hours and Place: anytime with an appointment by email at 301-1405 or online							
Attachment	(Korean)							
	(English)	_21 .hwp (157.5KB)						
Prerequisite Course								
*1.Purpose of Course	In this course, (1) we provide graduate students with an introductory background on the multiphase flow to assist the research in their area of interest; (2) particularly emphasizing the dynamics of fluid particles (solid, gas and liquid) in other medium such as the solid-gas, gas-liquid, and liquid-gas two-phase flows							
*2.Materials and Reference								
*3.Evaluation Method	Attendance	Task	Medium	Final	Random Evaluation	Attitude	Other	Total
	10	20	30	40	0	0	0	100
	Attendance Policy		Students who are absent for over 1/3 of the class will receive a grade of 'F' or 'U' for the course. (Exceptions can be made when the cause of absence is deemed unavoidable by the course instructor.)					
	Remark of Others							
*4.Lecture Plan	Week 1: Introduction, Basic definitions & concepts Week 2: Introduction, Basic definitions & concepts Week 3: Phase coupling (transfer of mass and energy) Week 4: Phase coupling (transfer of mass and energy), Fluid forces on particles Week 5: Fluid forces on particles Week 6: Conservation equation (two-fluid model) Week 7: Conservation equation (two-fluid model) Week 8: Bubble dynamics Week 9: Bubble dynamics Week 10: Bubble growth and collapse Week 11: Bubble growth and collapse, Cavitation Week 12: Particle-laden flows Week 13: Dynamics of the droplets Week 14: Turbulence in multiphase flows Week 15: Turbulence in multiphase flows							
5.References to Course Registration	No prerequisite subjects are required but it would be helpful to take 'Inviscid flow "and "Viscous flow "(Core courses for the students majoring the fluid mechanics)							

6. Services for Students with Disabilities	Taking a Class	<p>Visual Impairment: Make textbooks(digital textbook, braille textbook, enlarged textbook etc.), Allow note takers</p> <p>Physical Disability: Make textbooks (digital textbook), Allow note takers and assistants</p> <p>Hearing Impairment: Allow note takers and translators, Allow lecture recording</p> <p>Health Impairment: Excuse absence due to health problems, Allow note takers</p> <p>Learning Disability: Allow note takers</p> <p>Intellectual Disability / Autism Spectrum Disorder: Allow note takers and mentors</p>
	Assignments & Evaluation	<p>Visual Impairment / Physical Disability / Hearing Impairment / Health Impairment / Learning Disability: Extend assignment deadlines, Offer alternate assignment submission and response method, Extend testing period, Offer alternate testing method, Offer different testing room</p> <p>Intellectual Disability / Autism Spectrum Disorder: Offer individualized assignments and alternative evaluations</p>
	Others	<p>Students who take this course can get appropriate level of support service including the support listed above depending on the students' individual characteristics and needs through consultation with professors and the Support Center for Students with Disabilities. If you have any questions concerning support service for students with disabilities you can contact Professor Park, Hyungmin(02-880-4159) or Support Center for Students with Disabilities (02-880-8787).</p>
7.Guidelines for COVID-19 confirmed cases during face-to-face class	Class	<p>Switch to non-face-to-face classes when there are confirmed cases.</p> <p>According to the guidance of SNU Health Service Center/administrative office, if necessary, the test will be conducted, and the class will be held non-face-to-face for 2 weeks.</p> <p>Even if a confirmed case occurs in a classroom or building where face-to-face classes are being held, the classes will be switched to non-face-to-face during the disinfection period according to the guidance of the administrative office.</p>
	Students	<p>Confirmed cases, suspected cases, and patients under investigation must act in accordance with the guidelines of the Korea Disease Control and Prevention Agency and also submit 「Application for Recognition of Attendance」 to the faculty to receive recognition of attendance during self-quarantine period.</p> <p>Student must attend non-face-to-face classes if possible.</p>