

Introduction to Fluid-Structure Interaction

Spring 20123 MON/WED/FRI 9:00~10:00, Room N27-1108

Instructor: Phill-Seung Lee, phillseung@kaist.edu, 010-9105-3694

Teaching Assistant:

Prerequisites: Undergraduate statics and mathematics

Reference books: Fluid-Structure Interaction (HJP Morand and R Ohayon). 1995.
Liquid Sloshing Dynamics (RA Ibrahim). 2005.
Marine Hydrodynamics (JN Newman). 1986.

Grades: Homework (15%) + Midterm Exam (40%) + Final Exam (45%)

This course covers essential elements of dynamics of elastic bodies, basic fluid mechanics, and their interactions. The course strives to offer a balanced coverage of theoretical aspects and modern computational methods for modeling, analysis and design of fluid-structure interaction systems.

Schedule

Period (week)	Contents	Period (week)	Contents
1	Introduction to fluid-structure interaction	9	Coupling procedures
2	Vector, matrix and tensor	10	Sloshing problems - I
3	Solid and structural mechanics	11	Sloshing problems - II
4	Finite element method	12	Ocean hydrodynamics
5	Structural dynamics - I	13	Floating structures - I
6	Structural dynamics - II	14	Floating structures -II
7	Fluid mechanics	15	Floating structures - III
8	Midterm	16	Final Exam