Fluid Mechanics

Instructor: Nikos Stergiopulos
Textbook: Fundamentals of Fluid Mechanics, Munson et al., 7th edition, SI version
Term: Spring 2025

Assignment sheet

Period	Date	Chapters/Articles	Topics	Problems
1	Feb 17 Feb 21	1.1-1.9 2.1-2.3.1,2.5-2.7	Fluid properties Fluids at rest	1.46, 1.63, 1.69, 1.72, 1.76, 1.81
2	Feb 24 Feb 28	2.8-2.11.1 3.1-3.3	Fluids at rest	2.4, 2.39, 2.93, 2.110, 2.131, 2.144
3	Mar 3 Mar 7	3.4-3.7	Bernoulli equation & applications	3.12, 3.65, 3.69, 3.76, 3.94, 3.107
4	Mar 10 Mar 14	4.1-4.2.3, 4.3-4.5	Velocity, acceleration, control volume, Reynolds Transport Theorem	4.13, 4.31, 4.36, 4.52, 4.54, 4.68
5	Mar 17 Mar 21	5.1-5.2.2	Conservation of mass Momentum equation	5.10, 5.23, 5.36, 5.41, 5.48, 5.53
6	Mar 24 Mar 28	5.3	Energy equation. Applications.	5.102, 5.115, 5.121, 5.129, 5.133, 5.134
7	Mar 31		Mid-term exam	
8	Apr 7 Apr 11	6.1-6.3	Differential analysis of fluid flow Conservation of mass	6.3, 6.4, 6.6 6.8, 6.12, 6.14
9	Apr 14 Apr 18	6.4-6.5	Stream function Potential flows	6.21, 6.22, 6.25, 6.33, 6.41, 6.44
10	Apr 28 May 2	6.8-6.9.3	Viscous flow. Navier-Stokes equations	6.87, 6.89, 6.95, 6.99, 6.103, 6.104
11	May 5 May 9	7.1-7.8	Dimensional analysis	7.13, 7.19, 7.22, 7.28, 7.34, 7.69
12	May 12 May 16	8.1-8.2, 8.4	Viscous flow in pipes.	8.15, 8.18, 8.20, 8.25, 8.30, 8.43
13	May 19 May 23	8.4-8.5	Minor losses, non-circular conduits. Single pipe flow	8.58, 8.79, 8.88, 8.90, 8.94, 8.101
14	May 26		CFD Lab	

General Instructions

Grading: The final grade in the course will be assigned on the following basis:
Mid-term exam: 40%
Final exam: 60%

Homework: Assigned homework problems are not graded and do not need to be turned in. Solution to problems will be provided with 1-week delay via moodle.

Exams: Mid-term and final exam will be closed book and closed notes. A crib sheet (2 pages for mid-term and 2 extra pages for final) may be used.

Final exam bonus: If the grade of the final exam is greater than the mid-term exam, then the gravity of the final exam is raised to 80%.