



IYTE CIVIL ENGINEERING DEPARTMENT
CE 371 HYDROMECHANICS
2026-2027 FALL SEMESTER

Instructor:

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Assistants:

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Objectives:

1. Basic concepts and laws related to hydraulics. 2. Analysis and design of pressurized pipe systems. 3. Analysis of gradually and rapidly varied flow. 4. Analysis and design of water distribution networks 5. Analysis of open channel flows, channel transitions and calculations of free surface profiles 6.Safe and economical design of open channels.

Reference Books:

Çengel, Y.A., Cimbala, J.M. Fluid Mechanics Mc Graw Hill , 2nd ed.New York , 2010

Munson, B. R., Young, D. F., and Okiishi, T. H., Fundamentals of Fluid Mechanics, John Wiley and Sons Inc., 7th edition, U.S.A., 2013.

Kundu, P.K., Cohen, I.M. Fluid Mechanics Elsevier Academic Press, Third Edn. , New York , 2004

Chow, V. T. Open-Channel Hydraulics, McGraw-Hill, Kogakusha, Tokyo 1959

Tentative Course Outline:

Week		Experiment	Topic
1	28.09/05.10		Introduction and basic laws
2	05.10/12.10	1 st -7.10.2026	basic laws and concepts of hydromechanics
3	12.10/19.10	2 nd -14.10.2026	General Characteristics of Flow in Closed Conduits
4	19.10/26.10	3 rd -21.10.2026	Computation of Flow in Single Pipes
5	26.10/02.11	4 th -28.10.2026	Velocity measurement and Non-uniform Flow
6	02.11/09.11		Pipeline Systems, Hardy-Cross method
7			Midterm I (11.11.2026)
8	16.11/18.11	5 th -18.11.2026	

9	23.11/30.11		General Characteristics of Open Channel Flow, Uniform Flow
10	30.11/07.12		Specific-Energy Concept, Channel transitions
11	07.12/14.12	6 th - 09.12.2026	Rapidly varied low, Specific Force Concept
12	14.12/21.12		Gradually and Rapidly Varied Flow
13	21.12/28.12		Midterm II (23.12.2026)
14	28.12/04.01	7 th - 30.12.2026	Design of Open Channels for Uniform Flow
15	04.01/06.01		Design of Open Channels for Uniform Flow

Experiment # 1: Jet impact

Experiment # 2: Bernoulli

Experiment # 3: Reynold's experiment

Experiment # 4: Energy Losses

Experiment # 5: Orifice and Free jet

Experiment # 6: Weir measurements

Experiment # 7: Open channel

Course Requirements

- 3 hours lecture +2 hours laboratory or recitation/lecture per week
- Two mid-term examinations and a final examination
- Laboratory reports

Grading:

2 Midterms: each 25%, Final Exam: 35%

Lab Reports: 15%

Attendance: 5% bonus (minimum 50% attendance is required to avoid an NA grade and qualify for the bonus).

You can follow announcements and lecture notes on Microsoft Teams