# HASAN KALYONCU UNIVERSITY
## Faculty of Engineering
## Course Description Form

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|---|---|---|---|---|
| **COURSE:** Hydraulics | | | | |
| **CODE:** CE372 | **SEMESTER:** SPRING | | | |
| **LANGUAGE:** ENGLISH | **TYPE:** COMPULSORY | | | |
| **PRE-REQUISITES: -**<br>**CO-REQUISITES: -** | **THEORY** | **PRACTICAL** | **CREDIT** | **ECTS** |
| **WEEKLY HOURS: 3** | 3 | 0 | 3 | 4 |

**CONTENT OF THE COURSE:**
Fluid flow concepts and measurements; Dimensional analysis, similitude and hydraulics models; Flow of incompressible fluids in pipelines; Pipe network analysis; Pump-pipeline system analysis and design, Steady open channel flow.

**OBJECTIVE OF THE COURSE:**
To enable students to understand and solve the problems of pipe flow and open channel flow. Also, the student will be able to analyze the specific energy and the hydraulic jump through open channels in addition to the Back water profiles.

| **WEEKLY SCHEDULE** | |
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| **Week** | **Topics** |
| 1 | Course Description |
| 2 | Dimensional Analysis |
| 3 | Fluid Properties and Hydraulic Units |
| 4 | Flow of Fluids and their Measurements |
| 5 | Flow of Incompressible Fluids in Pipes |
| 6 | Pipe Network line Analysis I |
| 7 | Pipe Network line Analysis II |
| 8 | Mid-term Exam |
| 9 | Pump pipeline Systems and Analysis |
| 10 | Open Channel Hydraulics I |
| 11 | Open Channel Hydraulics II |
| 12 | Hydraulic Jump and Rapidly Varied Flow |
| 13 | Gradually Varied Flow |
| 14 | General Evaluation |

**TEXTBOOK:**
**REFERENCE BOOKS**


- • Brater, Ernest F, King, Horace Williams, Lindell, James E, Wei, C.Y. (1996). *Handbook of Hydraulics 7th edition), Publisher: Mc Graw Hill.*
- Featherstone, R.E, Nalluri, C. (1998). *Civil Engineering Hydraulics 3rd Edition, Publisher*: Blackwell Science, USA.

| | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LO1** | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO2** | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO3** | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| **LO4** | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |
| | PO: Program Outcomes \| LO: Learning Outcomes<br>Values: 0: None \| 1: Low \| 2: Medium \| 3: High | | | | | | | | | | |

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| **INSTRUCTOR(S):** | Asst.Prof.Dr. H.Çağan Kılınç |
| **FORM PREPARATION DATE:** | 22.05.2019 |

| **LEARNING OUTCOMES OF THE COURSE:** |
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| **LO1:** To study the application of dimensional analysis to the hydraulics problems.<br>LO2: To present the principles of model theory.<br>LO3: To analyse the basic equations and engineering applications of closed conduit flows.<br>LO4: To present the basic equations and engineering applications of open channel flows. |

| **CONTRIBUTION OF THE COURSE TO VOCATIONAL EDUCATION** |
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| The student learns the water transfer methods with the information he/she has received in the course. Learns about pipelines and head losses in pipes, pump and turbine and water transfer methods. Learns reservoir systems. He/She learns channel sections in open channel hydraulics, optimal sections for channels and energy losses that may occur in these channels, also learns sudden and gradually changing currents and hydraulic jump |