

COURSE DESCRIPTION FORM

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| Course Code and Title | CE473 WATER RESOURCES ENGINEERING I | | |
| Semester | 7 | | |
| Catalog description | Fundamentals of open channel hydraulics bhydraulics, continuity equations, changes of flow regimes and hydraulic jump, channel transitions, gradually varied flow, characteristics and transport of sediment in streams, discharge computations and hydraulics of weirs and spillways, sharp-crested, broad-crested overflow and side channel spillways, sluice gates and their hydraulic computations, energy dissipating structures, stability analysis of spillways | | |
| Required reading | 1.Chow, V.T., Open Channel Hydraulics, Mc Graw Hill, 1959 | | |
| Recommended reading | 2.Özbek, T.Hydraulics of Open Channel Flows and Hydraulic Structures, Teknik Yayınevi, 2009 (in Turkish) | | |
| ECTS | 5 | | |
| Prerequisites and co-requisites | Prerequisite of this course is: CE376 HYDROMECHANICS Required attendance to lectures is at least 70% of total term hours. | | |
| Compulsory/Elective | Compulsory | | |
| Language of instruction | English | | |
| Aim of course | To teach students the basic principles of hydrology of water structures. | | |
| Learning outcomes of the course unit | 1) Review of fundamental principles of hydraulics 2) Teaching of hydraulics of hydraulic structures 3) Application of the fundamentals of hydraulics to the design and stability analysis of hydraulic structures | | |
| Mode of delivery | The mode of delivery of this course is face to face. | | |
| Course content | <ol style="list-style-type: none"> 1. Fundamentals of hydraulics of open channel flow 2. Continuity equations 3. Continuity equations 4. Changes of flow regimes and hydraulic jump 5. Channel transitions 6. 1. Midterm 7. Gradually varied flow 8. Gradually varied flow 9. Sediment transport in rivers 10. Discharge computation and hydraulics of overflow spillways (ogee crested) 11. Sharpe, broad crested and side channel spillways 12. Sluice gates and their hydraulic principles 13. 2. Midterm, Energy dissipating structures 14. Energy dissipating structures 15. Stability analysis of spillways | | |
| Planned learning activities and teaching methods | 3 lecture hours per week (3+0) Web search and library use Report preparation Reading Midterm exam and required works Final exam and required works | | |
| Assessment methods and criteria | | Quantity | Percentage (%) |
| | Mid-terms | 2 | 60 |
| | Assignment | | |
| | Exercises | | |
| | Projects | | |
| | Practice | | |

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| | Quiz | | | | | | | | |
| | Contribution of In-term Studies to Overall Grade % | | | | | | | | 60 |
| | Contribution of Final Examination to Overall Grade (%) | | | | | | | | 40 |
| | Attendance | | | | | | | | |
| Workload | Work activity | Total Week Count | Weekly Duration (in hour) | Total Workload in Semester | | | | | |
| | Theoretical Study Hours of Course Per Week | 14 | 3 | 42 | | | | | |
| | Practicing Hours of Course Per Week | 14 | 0 | 0 | | | | | |
| | Reading | 14 | 1 | 14 | | | | | |
| | Searching in Internet and Library | 14 | 2 | 28 | | | | | |
| | Designing and Applying Materials | 14 | 0 | 0 | | | | | |
| | Preparing Reports | 14 | 0 | 0 | | | | | |
| | Preparing Presentation | 14 | 0 | 0 | | | | | |
| | Presentation | 14 | 0 | 0 | | | | | |
| | Mid-Term and Studying for Mid-Term | 2 | 10 | 20 | | | | | |
| | Final and Studying for Final | 1 | 20 | 20 | | | | | |
| | Other | 0 | 0 | 0 | | | | | |
| | Total Workload: | | | 124 | | | | | |
| | Total Workload / 25: | | | 4.96 | | | | | |
| ECTS: | | | 5 | | | | | | |
| Course's contribution to program | No | Program Learning Outcomes | | | 1 | 2 | 3 | 4 | 5 |
| | 1 | Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems. | | | | | | | X |
| | 2 | Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose. | | | | | | | X |
| | 3 | Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. | | | | | | X | |
| | 4 | Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively. | | | X | | | | |
| | 5 | Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions. | | | X | | | | |
| | 6 | Ability to work efficiently in intra-disciplinary and multi-disciplinary teams. | | | | X | | | |
| | 7 | Ability to work individually. | | | | | | X | |
| | 8 | Ability to communicate effectively in Turkish, both orally and in writing; ability to write effective reports and comprehend written reports. | | | X | | | | |

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| | 9 | Knowledge of English of B1 level according to <u>Common European Framework of Reference</u> . | | | | | | |
| | 10 | Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions. | X | | | | | |
| | 11 | Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself. | X | | | | | |
| | 12 | Consciousness to behave according to ethical principles and professional and ethical responsibility. | X | | | | | |
| | 13 | Knowledge on standards used in civil engineering practice. | | | X | | | |
| | 14 | Knowledge about business life practices such as project management, risk management, and change management. | X | | | | | |
| | 15 | Awareness in entrepreneurship, innovation; knowledge about sustainable development. | X | | | | | |
| | 16 | Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering. | X | | | | | |
| | 17 | Awareness of the legal consequences of engineering solutions. | X | | | | | |
| Name of lecturer(s) and contact information | Prof.Dr. Osman Nuri Özdemir, ozdemir@gazi.edu.tr Assoc.Prof. Dr. Nihat Eroğlu, enihat@gazi.edu.tr Assist. Prof.Dr. Müsteyde Baduna Koçyiğit, baduna@gazi.edu.tr | | | | | | | |