| COURSE DESCRIPTION FORM | |
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| **Course Code and Title** | CE364 SOIL MECHANICS II |
| **Semester** | 6 |
| **Catalog description** | Shear strength of soils, lateral earth pressure theories, slope stability, analysis of slopes under drainage and undrained conditions, bearing capacity of shallow foundations, settlement shallow foundations |
| **Required reading** | Geoteknik Mühendisliğine Giriş : Introduction to Geotechnical Engineering, Robert D. Holtz \| William D. Kovacs \| Thomas C. Sheahan |
| **Recommended reading** | Zemin Mekaniği, Kutay Özaydın<br>Geoteknik Bilgisi 1 Çözümlü Problemlerle Zeminler Ve Mekaniği, Akın Önalp<br>Geoteknik Bilgisi 2 Yamaç ve Şev'lerin Mühendisliği Akın Önalp, Ersin Arel<br>Geoteknik Bilgisi 3 Bina Temelleri, Akın Önalp, Sedat Sert<br>Geoteknik Mühendisliği İlkeler ve Uygulamalar, Donald P. Coduto, Çeviri: Kamil Kayabalı, Murat Mollamahmutoğlu |
| **ECTS** | 5 |
| **Prerequisites and co-requisites** | Prerequisite of this course is: **CE361 SOIL MECHANICS I**<br>Required attendance to lectures is at least 70% of total term hours. |
| **Compulsory/Elective** | Technical course |
| **Language of instruction** | English |
| **Aim of course** | Presentation of basic principles on the strength of soils, lateral soil pressure theories, slope stability and bearing capacity to the students |
| **Learning outcomes of the course unit** | 1. Know the shear strength of soils<br>2. Has knowledge about ground mechanics basic experiments.<br>3. Know and use lateral soil pressure theory<br>4. Know bearing capacity of shallow foundations.<br>5. Can calculate slope stability. |
| **Mode of delivery** | The mode of delivery of this course is face to face. |
| **Course content** | Week 1 Introduction. Shear strength of soils<br>Week 2 Shear strength of soils<br>Week 3 Shear strength of soils<br>Week 4 Shear strength of soils<br>Week 5 Bearing capacity of shallow foundations<br>Week 5 Bearing capacity of shallow foundations<br>Week 7 Midterm<br>Week 8 Lateral soil pressure theories<br>Week 9 Lateral soil pressure theories<br>Week 10 Lateral soil pressure theories<br>Week 11 Midterm / Lab. studies, HWs and Quizes<br>Week 12 Slope stability<br>Week 13 Slope stability<br>Week 14 Slope stability<br>Week 15 Slope stability |
| **Planned learning activities and teaching methods** | 3 lecture hours per week (3+0)<br>Web search and library work<br>Reading, Quizzes<br>Lab. studies and lab. report preparation<br>Homeworks |

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| | Midterm exams<br>Final exam |

**Assessment methods and criteria**

| | Quantity | Percentage (%) |
|---|---|---|
| Mid-terms | 2 | 35 |
| Assignment | 5 | 10 |
| Exercises | 3 | 5 |
| Projects | - | - |
| Practice | - | - |
| Quiz | 5 | 10 |
| Contribution of In-term Studies to Overall Grade % | | 60 |
| Contribution of Final Examination to Overall Grade (%) | | 40 |
| Attendance | | |

**Workload**

| Efficiency | 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 | 0 | 0 | 0 |
| Reading | 10 | 2 | 20 |
| Searching in Internet and Library | 5 | 2 | 10 |
| Designing and Applying Materials | 0 | 0 | 0 |
| Preparing Reports | 5 | 3 | 15 |
| Preparing Presentation | 0 | 0 | 0 |
| Presentation | 0 | 0 | 0 |
| Mid-Term and Studying for Mid-Term | 4 | 8 | 32 |
| Final and Studying for Final | 2 | 5 | 10 |
| Other | 0 | 0 | 0 |
| Total Workload: | | | 129 |
| Total Workload / 25: | | | 5,16 |
| ECTS: | | | 5 |

**Course's contribution to program**

| No | Program Learning Outcomes | 1 | 2 | 3 | 4 | 5 |
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| 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 | | | | X | |

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| | desired result; ability to apply modern design methods for this purpose. | | | | | | |
| 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 | | | | | |
| 9 | Knowledge of English of B1 level according to Common European Framework of Reference. | | | X | | | |
| 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 | | | |

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| **Name of lecturer(s) and contact information** | Prof. Dr. Yüksel YILMAZ; http://websitem.gazi.edu.tr/site/yyuksel<br>Prof. Dr. Sami Oğuzhan AKBAŞ; http://websitem.gazi.edu.tr/site/soakbas<br>Doç. Dr. Ayhan GÜRBÜZ; http://www.websitem.gazi.edu.tr/site/agurbuz<br>Dr. Erhan TEKİN, http://www.websitem.gazi.edu.tr/site/etekin |