| IM 461 FOUNDATION ENGINEERING I | | | CIVIL ENGINEERING | |
|---|---|---|---|---|
| **Semester** | **Credit Structure** | | | |
| | **Lecture** | | **Recitation** | **Laboratory** |
| 7 | 3 | | 0 | 0 |
| **Language** | Turkish | | | |
| **Compulsory / Elective** | Compulsory | | | |
| **Prerequisites** | None | | | |
| **Catalog Description** | Soil and foundations. Site exploration for intended purpose. Boring and soil sampling methods. In-situ testing. Foundation loads. Total and differential settlement. Soil-foundation-structure interaction. Shallow foundations. Rigid and elastic analysis of shallow foundations. Excavation methods. Retaining methods and basic retaining calculations. | | | |
| **Course Objectives** | Soil investigations for design of foundations and informing and teaching the skills design of shallow foundations | | | |
| **Course Outcomes** | Being able to design foundations under general conditions and in the absence of a geotechnical engineer. | | | |
| **Textbook and /or References** | Zemin İncelemesi ve Temel Tasarımı, Prof. Dr. Sönmez YILDIRIM, Birsen Yayınevi, 2002 | | | |
| **Assessment Criteria** | | | **Quantity** | **Percentage** |
| | **Midterm Exams** | | 2 | 50 |
| | **Quizzes** | | | |
| | **Homeworks** | | | |
| | **Projects** | | | |
| | **Term Paper** | | | |
| | **Laboratory Work** | | | |
| | **Other** | | | |
| | **Final Exam** | | 1 | 50 |
| **Course Category by Content (%)** | **Mathematics and Basic Sciences** | | 10 | |
| | **Engineering Science** | | 60 | |
| | **Engineering Design** | | 30 | |
| | **Social Sciences** | | - | |
| **Instructors** | **Öğr. Gör. Dr. Ünsal SOYGÜR** | | | |

| COURSE PLAN | |
|---|---|
| **Week** | **Topics** |
| **1** | Necessity and contents of soil investigation |
| **2** | Methods of investigations of soil and sample taking. |
| **3** | In-situ Experiments (Tests) |
| **4** | Lateral Earth Pressure and Supported Excavations |
| **5** | Design of Supported Excavations |
| **6** | Design of Retaining Walls |
| **7** | Bearing Capacity of Shallow Foundations |
| **8** | Estimate of Shallow Foundation Settlement |
| **9** | Estimate of Shallow Foundation Settlement |
| **10** | Single Footings |
| **11** | Continuous Footings |
| **12** | Mat Foundations |
| **13** | Foundations on Earthquake Zones |
| **14** | Description of Pile Foundations |

| RELATIONSHIP BETWEEN THE COURSE AND DEPARTMENT CURRICULUM | | | | |
|---|---|---|---|---|
| | **Program Outcomes** | **1** | **2** | **3** |
| **1** | An ability to apply knowledge of mathematics, science, and engineering | | | X |
| **2** | An ability to design and conduct experiments, as well as to analyze and interpret data | | X | |
| **3** | An ability to design a system, component, or process to meet desired needs | | | X |
| **4** | An ability to function on multi-disciplinary teams | | | X |
| **5** | An ability to identify, formulate, and solve engineering problems | | X | |
| **6** | An understanding of professional and ethical responsibility | | | X |
| **7** | An ability for effective written and oral communication in Turkish and English | X | | |
| **8** | The broad education necessary to understand the impact of engineering solutions in a global and societal context | | X | |
| **9** | A recognition of the need for, and ability to engage in life-long learning | | | X |
| **10** | A knowledge of contemporary issues | | X | |
| **11** | An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice | X | | |
| **Contribution of the course :** 1:None 2:Partially 3:Completely | | | | |