|  |
| --- |
| **فصل أول 2013** |
| طباعة  |
|

|  |
| --- |
| **Department of Civil Engineering**  |
| **Soil Mechanics (61331)** |
| **Total Credits**  | **3** |
| **major compulsory**  |
| **Prerequisites**  | P1 : Mechanics of Materials (61207) OR Mechanics of Materials (61212) P2 : Engineering Geology (61230) OR Eng'g Geology (61203)  |
| **Course Contents**  |
| Students will learn the fundamental principles of soil behavior including physical and mechanical properties, as well as the classification, identification, and soil-testing. Students will also be introduced to the principles of permeability and seepage as well as the theory and applications of consolidation. The course ends with a look at shear strength applications on soil and soil bearing for building foundations and other purposes.  |
|

|  |  |  |
| --- | --- | --- |
| **Intended Learning Outcomes (ILO's)**  | **Student Outcomes (SO's)**  | **Contribution**  |
| 1  |   Have good understanding of the origin of the soil and geological cycle, phase diagram and consistency of soil – Atterberg limits and soil classification.  |  A   | 30 %  |
| 2  | Able to describe and quantify soil compaction,  |  A   | 15 %  |
| 3  | Able to describe and quantify soil permeability and to perform seepage analysis including flow net.  |  A   | 15 %  |
| 4  | Able to estimate soil stresses and settlement under different types of loads.  |  E   | 25 %  |
| 5  | Understanding and evaluate soil shear strength.  |  A   | 15 %  |

 |
| **Textbook and/ or Refrences**  |
| 1. Principles of Geotechnical Engineering, By: Braja M. Das, fifth Edition, 2002, Publisher: Thomson 2. Other references will be furnished during the semester.  |
|

|  |  |
| --- | --- |
| **Assessment Criteria**  | **Percent (%)**  |
| First Exam  | 20 %  |
| Second Exam  | 20 %  |
| Homeworks  | 10 %  |
| Final Exam  | 50 %  |

 |
| **Course Plan**  |
|

|  |  |
| --- | --- |
| **Week**  | **Topic**  |
| 1  | Introduction to Geotechnical Engineering  |
| 2  | Origin of Soil and Grain Size  |
| 3  | Origin of Soil and Grain Size  |
| 4  | Weight – Volume Relationships, Plasticity, and Structure of Soil  |
| 5  | Engineering Classification of Soil  |
| 6  | MIDTERM EXAM 1  |
| 7  | Soil Compaction  |
| 8  | Permeability and Seepage  |
| 9  | Permeability and Seepage  |
| 10  | Stresses in a Soil Mass  |
| 11  | Stresses in a Soil Mass  |
| 12  | MIDTERM EXAM 2  |
| 13  | Compressibility of Soil  |
| 14  | Compressibility of Soil  |
| 15  | Shear Strength of Soil  |
| 16  | Final Exam  |

 |

 |