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| **فصل أول 2013** |
| طباعة  |
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| **Department of Civil Engineering**  |
| **Foundation Engineering (61431)** |
| **Total Credits**  | **3** |
| **major compulsory**  |
| **Prerequisites**  | P1 : Geology and Soil Mechanics (68300) OR Soil Mechanics (61331) OR Soil Mechanics (61302)  |
| **Course Contents**  |
| This course begins with review of soil mechanics and introduction to subsurface exploration. Then it covers bearing capacity of shallow foundation, stress distribution and foundation settlement. Then it moves to lateral earth pressure and retaining structures. This course ends with an introduction to the pile foundation system. It includes computer applications.  |
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| **Intended Learning Outcomes (ILO's)**  | **Student Outcomes (SO's)**  | **Contribution**  |
| 1  | Have good understanding of site investigation.  |  A   | 5 %  |
| 2  | Evaluate bearing capacity for different types of soil and different cases for shallow foundations.  |  A   | 30 %  |
| 3  | Estimate settlement for shallow foundations.  |  E   | 15 %  |
| 4  | Evaluate Lateral earth pressure and understand the behavior of retaining walls.  |  E   | 25 %  |
| 5  | Ability to analyze and design pile foundation.  |  A   | 25 %  |

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| **Textbook and/ or Refrences**  |
| 1. Principles of Foundation Engineering, Braja M. Das, Sixth Edition, PWS-KENT, 2007. 2. Foundation Analysis and Design, Joseph E. Bowles, Fifth Edition, McGraw-Hill, Inc., 1997. 3. Other references will be furnished during the semester.  |
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| **Assessment Criteria**  | **Percent (%)**  |
| First Exam  | 20 %  |
| Second Exam  | 20 %  |
| Homeworks  | 10 %  |
| Final Exam  | 50 %  |

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| **Course Plan**  |
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| **Week**  | **Topic**  |
| 1  | Geotechnical Properties of Soil (Review)  |
| 2  | Introduction to Subsurface Exploration  |
| 3  | Shallow Foundation: Ultimate Bearing Capacity  |
| 4  | Shallow Foundation: Ultimate Bearing Capacity  |
| 5  | Shallow Foundation: Ultimate Bearing Capacity of Special Cases  |
| 6  | MIDTERM EXAM 1  |
| 7  | Shallow Foundation: Settlement  |
| 8  | Combined and Mat Foundation  |
| 9  | Combined and Mat Foundation  |
| 10  | Lateral Earth Pressure  |
| 11  | MIDTERM EXAM 2  |
| 12  | Lateral Earth Pressure  |
| 13  | Retaining Walls  |
| 14  | Deep Foundation: Pile Foundation  |
| 15  | Deep Foundation: Pile Foundation  |
| 16  | Final Exam  |

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