FUTURE UNIVERSITY IN EGYPT جامعة المستقبل

## Faculty of Engineering & Technology

## Soil Mechanics

**Information :**

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| **Course Code :** | SCM 441 | **Level :** | Undergraduate | **Course Hours :** | 4.00- Hours |

**Department :** Department of Structural Engineering & Construction Management

**Instructor Information :**

| Title | Name | Office hours |
|---|---|---|
| Associate Professor | Ahmed Mohamed Abd Elkhaleq Ebid | 18 |
| Assistant Lecturer | MUHAMMAD DIAB SAAD ELDIN ABDLAAL | 16 |
| Assistant Lecturer | Ahmed Mohamed Abdel Moniem Mohamed Soliman | |

**Area Of Study :**

ÅGet starting with soil formation and classification
ÅUnderstand the basics of soil testing and stress distribution of different loading and foundation shapes.
ÅUnderstand of the seepage flow of water tough soil and its applications on various water structures as Weirs, regulators, cofferdamsé .etc
ÅExplore the consolidation of soil and its application to calculate the compressibility of soil and the time equivalent.
ÅExamine the methods of soil improvement including compaction and soil stabilization techniques and method of measuring compaction efficiency
ÅTake a practical look at the shear strength of soil and the applications of soil testing on the assessment of the shear strength under drained and un-drained conditions

**Description :**

Main properties of soil, Soil classification, Soil compaction, Permeability, stresses distribution in soil, Compressibility of soil, Theory of consolidation, shear strength of soil, Lateral earth pressure, Bearing capacity of soil.

**Course outcomes :**

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| **a.Knowledge and Understanding: :** | |
| 1 - | Differentiate the different soil improvement techniques. |
| 2 - | List the effects that flow of water has on soil |
| 3 - | Outlines the principles of slope stability analysis |
| **b.Intellectual Skills: :** | |
| 1 - | Calculate the results of field and lab compaction tests |
| 2 - | Computes discharge and uplift in seepage problems |
| 3 - | Analyzes stability of soil slopes using several methods |
| 4 - | Assess the obtained results accuracy |
| **c.Professional and Practical Skills: :** | |
| 1 - | Implements quality control procedures on field compaction |

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|---|---|
| 2 - | Proceeds sand cone and Proctor lab tests |
| 3 - | Draw flow nets in seepage problems |
| **d.General and Transferable Skills: :** | |
| 1 - | Manage time and meet deadlines |

**Course Topic And Contents :**

| Topic | No. of hours | Lecture | Tutorial / Practical |
|---|---|---|---|
| Permeability and seepage flow | 15 | 9 | 6 |
| Soil compaction and soil improvement | 10 | 6 | 4 |
| Stress Distribution | 10 | 6 | 4 |
| Elastic and Immediate Settlement | 10 | 6 | 4 |
| Soil consolidation and compressibility | 10 | 6 | 4 |
| Shear strength of soil | 10 | 6 | 4 |
| Slope stability | 10 | 6 | 4 |

**Teaching And Learning Methodologies :**

Class Lectures

Tutorials

**Course Assessment :**

| Methods of assessment | Relative weight % | Week No | Assess What |
|---|---|---|---|
| Final exam | 40.00 | | |
| First Mid Term Exam | 25.00 | | |
| Performance | 10.00 | | |
| Second Mid Term Exam | 25.00 | | |

**Course Notes :**

-Lecture Notes on Moodle

**Recommended books :**

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**Periodicals :**

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**Web Sites :**

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