

Academic Year: 2023-2024	Semester: spring	Starting Date: 20-02-2024
Course Name	Site investigation	
Module Language	English	
Instructor	Hawkar Hashim Ibrahim	
Teaching Assistance(s)	None	
College/University	College of Engineering – Salahaddin University-Erbil	
Department	Civil	
Semester Duration	15 weeks	
Course Overview	<p>The Site Investigation course provides students with a comprehensive understanding of the methods, techniques, and processes involved in investigating and assessing the geological and geotechnical properties of a site. Students will learn how to conduct field investigations, collect soil and rock samples, analyze data, and interpret findings to assess site suitability for construction projects.</p>	
Course Objectives	<ol style="list-style-type: none"> 1. The main objective of this course: 2. Understanding Site Investigation Principles: Students will gain knowledge of the fundamental principles of geotechnical site investigation, including site reconnaissance, subsurface exploration, and sampling techniques. 3. Field Investigation Techniques: The course will cover various field investigation methods such as test pit excavation, borehole drilling, geophysical surveys, and in-situ testing using techniques like Standard Penetration Test (SPT) and Cone Penetration Test (CPT). 4. Soil and Rock Sampling: Students will learn how to collect representative soil and rock samples from different depths using various sampling tools and equipment. They will understand the importance of sample quality and its impact on laboratory testing and analysis. 5. Data Analysis and Interpretation: Through practical exercises and case studies, students will develop skills in analyzing field data, interpreting geological formations, assessing soil properties (e.g., grain size distribution, moisture content, shear strength), and identifying potential geotechnical hazards (e.g., landslides, liquefaction). 6. Site Characterization: Students will learn how to characterize the geotechnical properties of a site, including soil classification, determination of engineering properties (e.g., bearing capacity, settlement), and identification of groundwater conditions. 	

	7. Reporting and Documentation: The course will emphasize the importance of clear and concise reporting of site investigation findings. Students will learn how to prepare geotechnical reports, maps, and drawings summarizing the site conditions, recommendations, and limitations.
Course Contents	<p>Week Lecture</p> <p>1st Course Book and Introduction</p> <p>2nd Site Investigation Overview</p> <p>3rd Number and Depth of Borings and in Situ Tests</p> <p>4th Field Identification and Boring Logs</p> <p>5th In Situ Tests (SPT, CPT, PT, ..</p> <p>6th In Situ Tests (Plate Load Test, CBR,</p> <p>7th In Situ Tests (Compaction Control Tests, ...</p> <p>8th Hydraulic Conductivity Field Tests</p> <p>9th Midterm Exam</p> <p>10th Laboratory Tests Overview</p> <p>11th Laboratory Tests_ Measurements</p> <p>12th Laboratory Tests_ Compaction Test</p> <p>13th Laboratory Tests_ (Consolidation, Swell, Shrink, and Collapse Tests)</p> <p>14th Laboratory Tests_ (Shear and Permeability tests)</p> <p>15th Final Exam</p>
Textbooks and References	<p>1. M. Nadim Hassoun and Akthem Al-Manaseer "Structural Concrete Theory and Design" 7th Edition, Wily, 2020.</p> <p>2. ACI 318M-19 `` Building Code Requirements for Structural Concrete (ACI 18M-19) and Commentary (ACI 318 RM-19) ``American Concrete Institute Farmington Hills. 2019.</p>
Teaching Style	3 hrs. in Class
Requirements for credit points	<p>For the award of credit points, it is necessary to pass the module exam. It contains:</p> <p>An examination during the academic semester, Quizzes, Assignments, and Final examination.</p> <p>Student's attendance is required in all classes.</p>
Credit ECTS	6
Grade Distribution	<p>The following grade system is used for the evaluation of the module exam:</p> <p>The module exam is based on the summation of two categories of evaluations:</p> <p>First: (50%) of the mark is based on the academic semester effort which includes</p> <ul style="list-style-type: none"> - Midterm Exam = 20%. - Quizzes = 10% - Seminar = 10% - Assignments = 10% <p>Second: (50%) of the mark is based on the final examination that is comprehensive for the whole of the study materials reviewed during the academic semester.</p>
Workload	Workload 10hrs/w (150hrs/s): Contact face-to-face 3hrs/w (45hrs/s) and Non-Contact Self learning 7hrs/w (105hrs/s)

