

Foundation Engineering I

Course Description Form

1. Course Name:					
Foundation Engineering I					
2. Course Code:					
CIV41103					
3. Semester / Year:					
First semester / Fourth year					
4. Description Preparation Date:					
1 st September 2025					
5. Available Attendance Forms:					
The. 3 hr Tut.1 hr					
6. Number of Credit Hours (Total) / Number of Units (Total)					
The. 45 hr Tut.15 hr / 3 Units					
7. Course administrator's name (mention all, if more than one name)					
Name: Dr. Lubna Abdulrahman Khder					
Email: lubna.abddulrahman@muc.edu.iq					
8. Course Objectives					
Course Objectives	Graduation of civil engineers qualified to work in their various fields of specialization: 1. Providing the student with the necessary skills and mechanisms to deal with the latest developments in scientific and technical progress in their field of specialization. 2. Special care for outstanding students and enabling them to put forward their ideas. 3. Providing the student with high skill and the ability to solve problems and teamwork. 4. - Instilling the spirit of diligence and perseverance and encouraging them to create and innovate.				
9. Teaching and Learning Strategies					
Strategy	1. Introduce students to definition of foundation design. 2. Self-regulated learning (i.e., planning, monitoring and evaluating one's own learning process in the classwork / Class team work). 3. Practice testing (short question answers and exams). 4. Self-explanation (i.e., explaining to oneself how new information is related to old information or explain steps taken when solving a problem or a task).				
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1.	Th.:4	Understand the purpose, stages, and basic methods of geotechnical site investigation.	Introduction – Site investigation	Lectures	Homework
2.	Th.:4	Interpret soil investigation data and select appropriate field and laboratory tests.	Continue- Site investigation	Lectures	Quiz
3.	Th.:4	Explain factors affecting bearing capacity and identify modes of soil failure.	Bearing capacity of shallow foundation	Lectures	Classwork

4.	Th.:4	Understand the theoretical basis and assumptions of classical bearing capacity equations.	Theory of bearing capacity)	Lectures	Classwork
5.	Th.:4	Apply Terzaghi and Meyerhof equations to compute safe bearing capacity using proper safety factors.	Terzaghi bearing capacity theory, Meyerhof bearing capacity theory, factor of safety	Lectures	Quiz
6.	Th.:4	Solve practical bearing capacity problems using Terzaghi and Meyerhof methods	Applications of Terzaghi and Meyerhof theories	Lectures	Homework
7.	Th.:4	Identify types of settlement and factors influencing foundation deformation.	Settlement of shallow foundation	Lectures	Classwork
8.	Th.:4	Calculate elastic settlement using soil elasticity parameters and influence factors.	Continue-elastic settlement with solving problems	Lectures	Quiz
9.	Th.:4	Apply bearing capacity and settlement concepts to advanced numerical problems.	Solving additional problems	Lectures	Homework
10.	Th.:4		Mid exam		Exam
11.	Th.:4	Demonstrate understanding of course concepts through problem-solving and analysis.	Geometric Design of shallow Foundations	Lectures	Quiz
12.	Th.:4	Identify geometric design requirements and parameters for shallow foundations.	Geometric Design of shallow Foundations	Lectures	Homework
13.	Th.:4	Design square footings based on applied loads and soil bearing capacity.	Geometric Design of square shallow foundations	Lectures	Classwork
14.	Th.:4	Design rectangular footings considering shape effects and load distribution.	Geometric Design of rectangular shallow foundations	Lectures	Quiz
15.	Th.:4	Apply principles of mat foundation design for large or heavily loaded structures.	Geometric Design of mat foundations	Lectures	Homework

16.Course Evaluation

The grade distribution is as follows:

Assessment: Formative 40 marks

Final exam: Theory 60 marks

17.Learning and Teaching Resources

Required textbooks (curricular books, if any)	Das, B.M. (2011),” Principle of foundation Engineering”, 7 th edition, Global engineering.
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Main references (sources)	Bowles, J. E. (1996), "Foundation Analysis and Design", 5 th edition Mc Graw-Hill Book Company Inc. New York.
Recommended books and references (scientific journals, reports...)	Al-Shakarchi, Y. & N. Al-Mohamadi, (1985) "Foundation Engineering", (in Arabic)"
Electronic References, Websites	