Course Description Form

1. Course Name:	
Engineering Surveying II	
2. Course Code:	
CIV045	
3. Semester / Year:	
Semester	
4. Description Preparation Date:	
23/9/2024	
5. Available Attendance Forms:	
Lectures are in person at the university only	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Number of Credit Hours (Total) 75 / Number of Units (Total) 5	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lect. Yasser Neama Kazem Email: yasir.al@uowa.edu.iq	
8. Course Objectives	
Course Objectives	• Introduction to directions, coordinate calculation, polygoning, deflection angles, map orientation, and types of north. • Introduction to the theodolite and its use in engineering projects. • Introduction to horizontal curves, their identification, and projection. • Learning how to avoid measurement and orientation obstacles. • Teaching students the methods of projection and layout for horizontal curves. • Introduction to vertical curves, their types in roads, identification, and projection. • Teaching students the methods of projection and layout for vertical curves. • Introduction to rapid tacheometric surveying and indirect building height calculation. • Introducing students to the total station device and how to use it in the field.
9. Teaching and Learning Strategies	

Strategy	• Explain the lectures and discussions in the classroom to deliver the scientific information to the student. • Directing questions and inquiries that are distinguished by accuracy. • Developing self-learning by deducing solutions to the problems. • Extracurricular assignments and solving classroom examples. • Field exercises within the university to apply measuring dimensions and levels. • Performing the tests specified for the subject at the times specified for them. • Reviewing the books and references indicated by the subject teacher.

10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

15	5	• The learner will be able to determine directions and orient maps. • The learner will be able to calculate point coordinates and deflection angles of polygons. • The learner will be able to operate the theodolite in all its types. • The learner will be able to calculate the elements of horizontal curves, project them, and stake them out on the ground. • The learner will be able to avoid obstacles in curve projection and use alternatives. • The learner will be able to calculate the elements of vertical curves, project them, and stake them out on the ground. • The learner will be able to calculate the heights of tall buildings indirectly. • The learner will be able to operate the Total Station device. • To enhance the learner's engineering sense, decisionmaking speed, and accuracy.	• Geographic north, magnetic north, Bearing and Azimuth. • Traversing and its types, and types of traverse polygons. • Calculation of directions, deflection angles, and coordinates. • Theodolite: its types, components, setup, and usage. • Reading horizontal and vertical angles using the theodolite. • Introduction to horizontal curves and their types. • How to project horizontal curves and methods of calculation. • Methods of staking out horizontal curves on the ground. • Obstacles and challenges in projecting horizontal curves. • Introduction to vertical curves and their types. • Exercises on calculating and projecting vertical curves on the ground. • Tacheometric surveying: methods and applications. • Exercises on calculating building heights using rapid surveying. • Introduction to the Total Station. • Using the Total Station to stake out horizontal curves.	Lectures are in person at the university only	Quizzes Homework Assignment Reports
11. Course Evaluation					

Quizzes = 10% Assignments= 10% Projects\Lab.=10% Report= 10% Midterm Exam= 10% Final Exam= 50%

12. Learning and Teaching Resources	
Main references (sources)	1 -المساحة الهندسية -ياس ني عبيد احم د- كلية الهندسة – جامعة البصرة – وزارة التعليم العا يل والبحث العل يم العراقية - 1990
	2- هندسة المساحة – للدكتور عباس زيدان – قسم البناء والانشاءات –الجامعة التكنولوجية – الطبعة الاول - 2009
	3- A text Book of Surveying and Leveling, R. Agor, 2012,Delhi