

## Course Description Form

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| 1. Course Name:                                                                                                        |
| Engineering Surveying II                                                                                               |
| 2. Course Code:                                                                                                        |
| CIV045                                                                                                                 |
| 3. Semester / Year:                                                                                                    |
| Semester                                                                                                               |
| 4. Description Preparation Date:                                                                                       |
| 2/1/2026                                                                                                               |
| 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)                                                    |
| 1. Name: Asst. Lect. Thaer Taher Atshan<br>Email: <a href="mailto:thaer.taher@uowa.edu.iq">thaer.taher@uowa.edu.iq</a> |
| 8. Course Objectives                                                                                                   |

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| <b>Course Objectives</b> | <ul style="list-style-type: none"> <li>• Introduction to directions, coordinate calculation, polygoning, deflection angles, map orientation, and types of north.</li> <li>• Introduction to the theodolite and its use in engineering projects.</li> <li>• Introduction to horizontal curves, their identification, and projection.</li> <li>• Learning how to avoid measurement and orientation obstacles.</li> <li>• Teaching students the methods of projection and layout for horizontal curves.</li> <li>• Introduction to vertical curves, their types in roads, identification, and projection.</li> <li>• Teaching students the methods of projection and layout for vertical curves.</li> <li>• Introduction to rapid tacheometric surveying and indirect building height calculation.</li> <li>• Introducing students to the total station device and how to use it in the field.</li> </ul> |
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## 9. Teaching and Learning Strategies

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| <b>Strategy</b> | <ul style="list-style-type: none"> <li>• Explain the lectures and discussions in the classroom to deliver the scientific information to the student.</li> <li>• Directing questions and inquiries that are distinguished by accuracy.</li> <li>• Developing self-learning by deducing solutions to the problems.</li> <li>• Extracurricular assignments and solving classroom examples.</li> <li>• Field exercises within the university to apply measuring dimensions and levels.</li> <li>• Performing the tests specified for the subject at the times specified for them.</li> <li>• Reviewing the books and references indicated by the subject teacher.</li> </ul> |
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## 10. Course Structure

| Week | Hours | Required Learning Outcomes | Unit or subject name | Learning method | Evaluation method |
|------|-------|----------------------------|----------------------|-----------------|-------------------|
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| 15 | 5 | <ul style="list-style-type: none"> <li>• The learner will be able to determine directions and orient maps.</li> <li>• The learner will be able to calculate point coordinates and deflection angles of polygons.</li> <li>• The learner will be able to operate the theodolite in all its types.</li> <li>• The learner will be able to calculate the elements of horizontal curves, project them, and stake them out on the ground.</li> <li>• The learner will be able to avoid obstacles in curve projection and use alternatives.</li> <li>• The learner will be able to calculate the elements of vertical curves, project them, and stake them out on the ground.</li> <li>• The learner will be able to calculate the heights of tall buildings indirectly.</li> <li>• The learner will be able to operate the Total Station device.</li> <li>• To enhance the learner's engineering sense, decisionmaking speed, and accuracy.</li> </ul> | <ul style="list-style-type: none"> <li>• Geographic north, magnetic north, Bearing and Azimuth.</li> <li>• Traversing and its types, and types of traverse polygons.</li> <li>• Calculation of directions, deflection angles, and coordinates.</li> <li>• Theodolite: its types, components, setup, and usage.</li> <li>• Reading horizontal and vertical angles using the theodolite.</li> <li>• Introduction to horizontal curves and their types.</li> <li>• How to project horizontal curves and methods of calculation.</li> <li>• Methods of staking out horizontal curves on the ground.</li> <li>• Obstacles and challenges in projecting horizontal curves.</li> <li>• Introduction to vertical curves and their types.</li> <li>• Exercises on calculating and projecting vertical curves on the ground.</li> <li>• Tacheometric surveying: methods and applications.</li> <li>• Exercises on calculating building heights using rapid surveying.</li> <li>• Introduction to the Total Station.</li> <li>• Using the Total Station to stake out horizontal curves.</li> </ul> | Lectures are in person at the university only | Quizzes<br>Homework<br>Assignment<br>Reports |
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## 11. Course Evaluation

Quizzes = 10%

Assignments= 10% Projects\Lab.=10% Report= 10%

Midterm Exam= 10%

Final Exam= 50%

## 12. Learning and Teaching Resources

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

  
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تأثر طاهر السهلاني  


