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| **Department of Civil Engineering** |
| **Course Name: Surveying I (10601221)** |
| **Total Credits: 2** | **Contact Credits:** 2 Theoretical Hours per Week |
| **Course Type:** Major compulsory | **Categorization of Credits:** Engineering Topic |
| **Prerequisites** | Probability and Statistics for Engineers (10216230) |
| **Course Description** |
| Introduction, Errors in surveying, Chain surveying (tape measurements), Leveling, Angles, Directions and angle measuring equipment, Electronic distance measurement, Coordinate geometry. |
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| **Course Learning Outcomes (CLO's)** | **Student Outcomes(SO's)** | **Performance Indicators(PI's)** | **Contribution %** |
| i | Familiar with the meaning of surveying, and its importance and association with civil engineering. Students will also learn other related issues such as scale, units of measurement, etc., as well as the different types of surveying errors and the importance of minimizing them and getting rid of them. | 1 | 1.2 | 30% |
| ii | Able to use basic surveying equipment such as tapes, levels, theodolites and total stations to make linear and angular measurements in both horizontal and vertical directions and prepare a surveying plan for a given area. Also, the student will be able to deal with surveying in terms of coordinates. | 6 | 6.2 | 60% |
| iii | Understands the impacts of surveying solutions on society | 4 | 4.2 | 10 |

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| **Textbook and/ or References:**1. Surveying for Engineers by: Dr. Najeh S. Tamim, 2nd edition, 2006.

2) Elementary Surveying: An Introduction to Geomatics by: Chrles D. Ghilani & Paul R. Wolf, 12th edition, 2008. 3) Surveying with Construction Applications by: Barry F. Kavanagh, 6th edition, 2007. |
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| **Assessment Criteria** | **Percent (%)** |
|  Quizzes and homeworks | 20 % |
| Midterm Exam | 35 % |
| Final Exam | 45 % |
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| **Course Plan** |
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| **Week** | **Topic** |
| **Week** | **Topic** |
| 1 | Course outline + Introduction |
| 2 | Introduction |
| 3 | Errors in surveying |
| 4 | Errors in surveying |
| 5 | Chain surveying |
| 6 | Chain surveying |
| 7 | Chain surveying + Leveling |
| 8 | Leveling |
| 9 | Leveling |
| 10 | Leveling  |
| 11 | Angles, directions and angle measuring equipment |
| 12 | Angles, directions and angle measuring equipment |
| 13 | Electronic Distance Measurement (EDM) |
| 14 | Electronic Distance Measurement (EDM)+ Coordinate geometry |
| 15 | Coordinate geometry |
| 16 | Final Exam. |

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