0

Department of Civil Engineering	
Surveying Lab. II (61323)	
Total Credits	**1**
major compulsory	
Prerequisites	P1 : Surveying Lab. I (61223) OR Surveying II (61322) P11Synch. : Surveying II (61322) OR Surveying Lab. I (61223)

Course Contents

Students in this course are supposed to apply in the field the principles that are being taught in the theoretical Surveying course (61322); mainly areas and volumes, route surveying, horizontal control surveys, introduction to photogrammetry and global positioning systems (GPS).

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Conduct field exercises using the various types of surveying equipment (both traditional and modern) and analyze and interpret data (measurements). They should also be able to report the results of measurement in a professional way.	B	90 %
2	Work as part of a team.	D	10 %

Textbook and/ or Refrences

Surveying for Engineers by: Dr. Najeh S. Tamim, 2nd edition, 2006.

Assessment Criteria	Percent (%)
Laboratory Work	40 %
Final Exam	60 %

Course Plan

Week	Topic
1 &2	Revision: Mapping details using the total station: Field work: Draw a sketch of the area on the field book and take all the required measurements using the total station. Office work: Compute the coordinates and reduced levels of all the points using Land Desktop, and draw a map of all the details including contour lines.
3	Areas and Volumes: Office work: - Measurement of areas using the digital planimeter as well as the mathematical methods. - Computation of volumes from grids and contour maps.
4	Setting out simple circular curves using linear methods: Office work: Compute and tabulate (on the field book) the information needed to set out the simple circular curves (using the linear methods, i.e. tape measurements). Field work: Go to the field and set out the curves.
5	Setting out simple circular curves using one theodolite and a tape: Office work: Compute and tabulate (on the field book) the information needed to set out the simple circular curve (using one theodolite and a tape). Field work: Go to the field and set out the curve.
6	Setting out simple circular curves using two theodolite: Office work: Compute and tabulate (on the field book) the information needed to set out the simple circular curve (using two theodolites). Field work: Go to the field and set out the curve.
7	Setting out simple circular curves using the total station: Office work: Compute and tabulate (on the field book) the information needed to set out the simple circular curve (using the total station). Field work: Go to the field and set out the curve.
8 &9	Setting out simple circular and transition curves using the theodolite and a tape: Office work: Compute and tabulate (on the field book) the information needed to set out a simple

	circular curve connected by transition curves from both sides using the theodolite and a tape. Field work: Go to the field and set out the curves.
10 &11	Setting out simple circular and transition curves using the total station: Office work: Compute and tabulate (on the field book) the information needed to set out a simple circular curve connected by transition curves from both sides using the total station. Field work: Go to the field and set out the curves.
12	Measuring and checking the sides and angles in a quadrilateral: Field work: Measure all the angles and sides of a quadrilateral including the two diameters. Office work: Check the quadrilateral for the existence of errors, mainly blunders.
13	Photogrammetry: Office work: - Study of the geometry of aerial photographs and measurement of the height of a building from a single photograph. - Stereoscopic viewing of a pair of overlapping photographs and measurement of parallax.
14	Measuring coordinates using GPS: Field work: Go to the field and collect data using GPS receivers. Office work: Retrieve the data from the receivers and compute the coordinates
15	Final exam