Zarqa University

Faculty of engineering
Department: civil engineering
Course title: surveying, 0902209

Prerequisite: calculus 101
Instructor:
Lecture's time:
Semester:
Office Hours:

Course description:

The course covers Basic Definitions in Surveying, Recording field data and notes, Error types and Sources, Units of measurements Metric and English system, Plotting and Map Scale, Linear and Angular Measurements, Surveying equipment and Instruments, Leveling and Contours principles Angles Azimuths and Bearings, coordinate systems and travers principles, Alignment and Horizontal Curves, Types, Geometric design of simple, spiral and compound Horizontal Curves. Vertical Alignment and Vertical Curves. Area and Volumes Calculations.

The course includes eight main parts:

1. Basic definitions in Surveying, units, scale, and directions
2. Linear and angular measurements
3. Leveling techniques
4. Contour lines
5. Coordinates and traverses
6. Horizontal Alignment (circular and spiral curves)
7. Vertical Alignment (vertical curves)
8. Area and volume calculation

Aims of the course:

1. This course will provide students with an understanding of the basic definitions in surveying.
2. Learning error theory, the unit of measurements and plotting and map scale.
3. Provide students with information about surveying equipment and instruments.
4. Learning linear and angular measurements and applications.
5. studying the leveling techniques
6. Learning the contour lines and its applications
7. Studding the coordinates system and traverses
8. Horizontal Alignment (circular and spiral curves)
9. Vertical Alignment (vertical curves)
10. Learning area and volume calculations and applications
11. Develop presentation skills and team work through individual and group projects

Intended Learning Outcomes (ILOs):

1. Ability in understanding fundamentals of surveying.
2. Learning error theory the unit of measurements and plotting and map scale
3. Learning linear and angular measurements and applications.
4. studying the leveling techniques
5. Learning the contour lines and its applications
6. Studying coordinates and Traverse calculations.
7. Provide Horizontal Alignment design techniques (circular and spiral curves)
8. Provide Vertical Alignment design techniques (vertical curves)
9. learning area and volume calculations and earthwork calculations and Mass Haul Diagram

Course structures:

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
1	3	1	Introduction to the course: Principles and Basic definitions in Surveying	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
1	3	2	Unit of Measurements and error theory	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
1	3	2	Plotting Scale and Map Scale	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
1	3	3	Linear Measurements	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
3	3	4	Leveling Exam I (up to end of week 6)	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
3	3	5	Contour Lines	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
1	3	3 and 6	Angles, Azimuths, Bearings and Angle Measurements	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion
2	6	6	Coordinates and Traverses Exam II (up to end of week 12)	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework and Discussion

1	3	7	Horizontal Alignment design techniques	participations PPt. presentations, Discussion	Homework and Discussion
1	3	8	Vertical Alignment design	participations PPt. presentations, Discussion	Homework and Discussion
2	6	9	Volume and Area Calculations and Earthwork calculations cut and fill and Mass Haul Diagram	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework, Discussion and project
1	3		Review, Final Exam	Lecturing with active participations PPt. presentations, Discussion	Quizzes and Homework, Discussion and project

References:

- Elementary Surveying: An Introduction to Geomatics, Charles D. Ghilani and Paul R. Wolf. (Jan 8, 2011).
- Basics of Surveying (Arabic). Youssuf M. Siyam

Assessment Methods:

Methods	Grade	Date
Quizzes and Homework and Project	10	
First Exam	20	
Second Exam	20	
Project	-	
Final Exam	50	