

Course Number: SE 212- Syllabus
Spatial Measurements
2024

Course Description:

This course is designed to equip students with the ability to compute corrected horizontal distances and planimetric areas using land, aerial, and space survey data through both direct and indirect methods. Additionally, the course provides the necessary knowledge to compute reduced levels and earthwork volumes from field data, plotted sections, or contours. Furthermore, students will learn to conduct field measurements, analyze data accuracy, and produce detailed maps that can be effectively interpreted.

Instructor:

Abdullah Alanazi, Ph.D.

Office Hours:

In person TBD. Also, appointments can be scheduled, send me an email at amalenazi@ksu.edu.sa

Textbook :

Paul, R. Wolf & Charles D. Ghilani,
“Elementary Surveying: An Introduction to Geomatics” 14th Ed. 2014. Pearson

Prerequisites:

MATH 107 - Vectors & Matrices.

Attendance:

Attendance is mandatory!!!!

Students are expected to attend each class and lab session.

The lecture notes **do not cover all** the course content. Important announcements will be made during the lecture sessions and review of laboratory procedures will also be outlined.

You are required to attend the laboratory session in which you are enrolled – **no exceptions.**

Laboratory and Assignments:

Homework Assignments that are turned in late incur a **-5% penalty per day** each class day that the assignment is late. Assignments over **five calendar days** late will not be accepted unless a written excuse and external verification. Homework is to be submitted in Lecture Hall. DO NOT place the homework under my office door.

Grading Policy: The final grades will be assigned using the following distribution:

Midterm-1 Exam	15 %
Midterm-2 Exam	15 %
Final Exam	40 %
Tutorial & Assignments	10 %
Laboratory	20 %
Total	100 %

Midterm Examinations:

- **Midterm-1 Exam: Saturday, 28th September 2024, from 10:00 AM to 12:00 PM**
- **Midterm-2 Exam: Saturday, 2nd November 2024, from 10:00 AM to 12:00 PM**

Executive rule of King Saud University:

The grades earned by the student in each course are calculated as follows:

Score out of 100	Interpretation in English	Grade code	Grade weight (out of 5)
95-100	Superior Excellent	A+	5.00
90 to less than 95	Excellent	A	4.75
85 to less than 90	Superior very good	B+	4.50
80 to less than 85	Very good	B	4.00
75 to less than 80	Superior good	C+	3.50
70 to less than 75	Good		3.00
65 to less than 70	Superior Acceptable	D+	2.50
60 to less than 65	Acceptable	D	2.00
Less than 60	Fail	F	1.00

Course Content:

No	List of topics
1	Introduction: Definitions, Types of Surveying, Tasks
2	Direct Distance Measurements
3	Types of errors and corrections
4	Collection of field data using ground survey instruments.
5	Plotting planimetric maps using field collected data and map scale
6	Planimetric area determination from maps and field measurements
7	Differential Levelling
8	Longitudinal, cross-sectional sections and volume computation
9	Grid levelling and volume computation
10	Contouring and volume determination
11	Introduction to Theodolites, EDM and Total Station
12	Indirect distance measurements using theodolites, EDM and Total station.
13	Introduction to Space-based measurements: Photogrammetry, RS and GPS