Izmir Institute of Technology
CE 204 ENGINEERING SURVEYING

2024-25 Spring Semester

Instructor: **Volkan Emre UZ, PhD** *Contact Details* *Phone*: (322) 7506803 *Office*: Room C-208 *e-mail*: volkanemreuz@iyte.edu.tr
Teaching Assistant: **Fırat Enver KESMEZ, Eng** *Contact Details* *Phone*: (232) 7506824 *Office*: Room E-106 *e-mail*: firatkesmez@iyte.edu.tr

Lecture Hours & Class Location: **Wednesday 08:45-12:30 (B211)**

Office Hours: **Monday 13:30 – 14:30**

Textbooks:

Barry F. Kavanagh, "**Surveying with Construction Applications**", Global Ed., 8th Ed., 2014. Pearson, ISBN-13: 9781292062006

J. Nathanson, M. T. Lanzafama, and P. Kissam, "**Surveying Fundamentals and Practices**", 6th Ed., Pearson, ISBN-13: 9780132378345

S.K. Roy, "**Fundamentals of Surveying**", Prentice Hall, ISBN-13: 978-8120341982

Schofield W., Breach M., "**Engineering Surveying**", 6th Ed., Elsevier Ltd., ISBN–13: 978-0750669498

You can also benefit from any other Surveying book

Course Outcome:

Students will be able to;

understand the principles of surveying,

develop an intermediate knowledge of the methods and procedures that are used on-site,

gain hands-on familiarity with a full range of surveying instruments and equipment,

design and manage surveying projects within a wide range of situations that may be encountered on-site,

analyze for possible errors in both the instrumentation and the methods used,

understand the importance of measurement precision and accuracy in engineering surveying,

develop skills in fundamental survey observations and teamwork.

Course Overview:

Basics, Methods, and Applications of Surveying. Distance Measurements. Mistakes and Errors. Leveling. Measuring Angles and Directions. Traverses. Topographic Surveys. Mapping.

Grade and Attendance Policy:

You will take **one mid-term** exam and **five site practices** during the semester, and **the final exam** will be taken at the end of the semester. The effect of Mid-Term, Site Practices (or quizzes), and Final Exam

on overall success scores will be **30%**, **30%**, and **40%**, respectively. Students must attend **all** site practices and at least **70%** of overall theoretical lecture hours.

Students are strongly recommended to answer questions asked during the class and ask questions about the subject not fully understood. It is well known that some behaviors in the class, such as entering late, leaving early, not paying attention, dealing with other material, or talking to neighbors lower the student's success. **It is imperative to turn off mobile phones during the course**. For whatever reason, students who are interested in mobile phones during the class will be taken out of the classroom. Students should obey the class hours and rules also in the fieldwork. **Smoking is strictly prohibited in the field during the class hours**.

Lecture notes will be shared with students, but they should take their notes while solving example problems in the class and site practices in the field. In the last lecture, before the fieldwork, it will be explained what to do in the field. Do not miss the details in the class!

There will be **eight groups** this year. Each group must have a leader who is responsible for managing his/her group in the field and taking and bringing back the equipment/instrument. The members of the groups will stay the same during the semester; however, the leader will change for every site practice. All group members are responsible for the loss or damage of instruments. You must keep all devices safe and clean.

Each student must have a scientific calculator for calculations in the field and exams. Fieldwork will be performed by the group; however, office work should be done individually. Each group member should submit his/her report two weeks after the fieldwork is conducted. These files should include all the measurements, calculations, drawings, and maps that will be done during the field and office.

Tentative Course Outline: ***Since the fieldwork will be conducted in the open air, the course outline may change according to weather conditions.***

Week 1	LECTURE-1	Introduction, Types of Surveying, Basic Measurements and Units
Week 2	LECTURE-2	Accuracy & Precision, Mistakes & Errors
Week 3	LECTURE-3	Methods of Measuring Linear Distance,
Week 4	**FIELDWORK-1**	Taping, Dropping/Erecting Perpendicular to/from a Line, Area Calculations
Week 5	LECTURE-4	Principles of Leveling, Equipment & Procedures, Types of Leveling
Week 6	**FIELDWORK-2**	Leveling Practice I - Vertical Control Leveling (Loop Level) – Groups 1-4
Week 7	**FIELDWORK-2**	Leveling Practice I - Vertical Control Leveling (Loop Level) – Groups 5-8
Week 8	LECTURE-5	Measuring Angles and Directions; Azimuths & Bearings, Fundamental Tasks
Week 9	LECTURE-6	Theodolites, Types of Traverses (Polygon), Errors, Example Problems
Week 10	**FIELDWORK-3**	A Closed Traverse Survey – Groups 1-4
Week 11	**FIELDWORK-3**	A Closed Traverse Survey – Groups 5-8
Week 12	**FIELDWORK-4**	Leveling Practice II - Profile Leveling (Groups 1-4); Leveling Practice III – Trigonometric Leveling (Groups 5-8)
Week 13	**FIELDWORK-4**	Leveling Practice II - Profile Leveling (Groups 5-8); Leveling Practice III – Trigonometric Leveling (Groups 1-4)
Week 14	LECTURE-7	Topographic Maps and Contour Lines, Scaling, Mapping System in Turkey
Week 15	**FIELDWORK-5**	Drawing a Topo Map