

COURSE SYLLABUS

Course Name and Code	CE254 SURVEYING
Course Term	4
Course Catalog Description	surveying, units of measurement, general information on measurement methods, scale, errors and types of errors, error calculation, simple horizontal measurements, determination of points and lines, linear measure, application of right angles, linear measure for shapes with obstacles, square measure, area calculation from ground measurements, theodolite and angle measurement, substructure and superstructure of theodolite, source of error for theodolite and debug, horizontal angle measurement and source of error, indication of point, coordinate systems, triangulation, exploration points and its construction, triangulation angle, base, district, small spot, side-point calculations, polygon calculations, connected polygon calculations, polygon errors, height measurement, levelling instrument, axis of levelling instruments, levelling applications and sources of error, land applications using levelling instruments
Course Textbook	Celal Songu, "Ölçme Bilgisi Cilt 1-2", Birsen Yayınevi.
Course Materials	Prof. Dr. Erdoğan Özbenli, Prof. Dr. Türkay Tüdeş, "Ölçme Bilgisi", KTÜ Basımevi, 2001.
Course Credit (AKTS)	3
Prerequisites	Prerequisite course: None. Compulsory attendance is minimum 70%.
Course Type	Compulsory
Course Language	English
Course Objective	The objective is to inform the students about surveying, get experienced on necessary calculations and field applications.
Learning Outcomes	<ol style="list-style-type: none"> 1. Get informed about surveying and gain the ability to make use of the information in field applications. 2. Gain the ability to make area measurements. 3. Gain the ability to make angle measurement. 4. Gain the ability to determine points and be able to work on coordinate systems. 5. Gain the ability to make polygon calculations. 6. Gain the ability to make use of the measurement devices such as theodolite and levelling instruments. 7. Get experienced on field applications.
Course Style	This course contains lectures and field studies.
Course Weekly Calendar	<ol style="list-style-type: none"> 1. Introduction: general information on surveying, measurement units and measurement methods 2. Surveying, errors and error types, calculation of error 3. Simple horizontal measurements, determination of points and lines, linear measure, application of right angles, linear measure for shapes with obstacles 4. Square measure, area calculation from ground measurements, area calculation from coordinates 5. Theodolite and angle measurement, substructure and superstructure of theodolite, source of error for theodolite and debug, horizontal angle measurement and source of error 6. Indication of point, coordinate systems, triangulation, exploration points and its construction, triangulation angle, base, district 7. Small spot, side-point calculations

	8. Midterm 9. Open polygon calculations 10. Closed polygon calculations 11. Connected polygons 12. Polygons, polygon calculations, polygon errors (general review) 13. Measurement of height, levelling instrument, axes of levelling instrument, levelling and applications, source of error 14. Midterm / Field applications with leveling instrument 15. Field applications with leveling instrument								
Learning Activity	Lecture 2 hours/week (2+1) Recitation 1 hour/week Project report Midterm I and Midterm II Final								
Evaluation Criteria		Number	Total Contribution (%)						
	Midterm	2	40						
	Homework	3	5						
	Recitation	1	5						
	Project	-	-						
	Pratik	-	-						
	Quiz	3	10						
	Total contribution of the in-term work to the term grade(%)		60						
	Contribution of the final exam to the term grade (%)		40						
Attendance									
Course Work Load	Activity	Number of Total Weeks	Duration (weekly hour)	Total Work Load					
	Weekly Lecture	14	2	28					
	Weekly Recitation	14	1	14					
	Readings	14	0	0					
	Literature Review	14	0	0					
	Design of course materials and application	14	0	0					
	Report	14	1	14					
	Preparation of Presentation	14	0	0					
	Presentation	14	0	0					
	Midterm Examination and Preparation	2	6	12					
	Final Examination and Preparation	1	7	7					
	Other	0	0	0					
	Total Work Load			75					
	Total Work Load/25			3.00					
Course Credit (AKTS)			3						
Contribution of the Course Outcomes to the Program Outcomes	No	Program Learning Outcomes			1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.					X		

	2	Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.			X		
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.	X				
	4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively.		X			
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions.		X			
	6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams.			X		
	7	Ability to work individually.			X		
	8	Ability to communicate effectively in Turkish, both orally and in writing; ability to write effective reports and comprehend written reports.	X				
	9	Knowledge of English of B1 level according to <u>Common European Framework of Reference</u> .			X		
	10	Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.		X			
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.		X			
	12	Consciousness to behave according to ethical principles and professional and ethical responsibility.			X		
	13	Knowledge on standards used in civil engineering practice.				X	
	14	Knowledge about business life practices such as project management, risk management, and change management.			X		
	15	Awareness in entrepreneurship, innovation; knowledge about sustainable development.		X			
	16	Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering.		X			
	17	Awareness of the legal consequences of engineering solutions.		X			
Course Instructor(s)	Dr. Öğr. Üye. Mustafa Kürşat Çubuk, ckursat@gazi.edu.tr Öğr. Gör. Dr. Çağatay M. BELGİN, cmbelgin@gazi.edu.tr						