

Module (Course Book)

2022-2023

College/ Institute	Erbil Technical College
Department	Civil Engineering Department
Module Name	Plane and Applied Surveying -1
Module Code	PAS; 304
Degree	Technical Diploma <input type="checkbox"/> Bachler <input checked="" type="checkbox"/> High Diploma <input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	Second stage – Third semester
Qualification	B.Sc.
Scientific Title	Engineer
ECTS (Credits)	7.0x 27
Module type	Prerequisite <input type="checkbox"/> Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	5
Weekly hours (Theory)	(2)hr Class
Weekly hours (Practical)	(3)hr Class
Number of Weeks	20
Lecturer (Theory)	Salar K Hussein; Kamal Yaseen Abdulla
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Course Book

Course Description	<p>The Surveying lectures have divided into two main parts, theoretical and practical parts. Theoretical Surveying lectures will help students to learn and easily recognize of the surveying subject contents such as Distance Measurement, Learning how to measure the distance by tape and chain. Knowing effects of temperatures on standard tape, leveling instrument How to calculate height of instrument and reduce level of points on earth and determine bench mark elevation. Calculating area and volumes. Determining the quantity of earth works which consist of cutting and filling quantities. The practical part consists of performing different field survey such distance measurement finding elevations height of objects contouring and drawing contour maps, area and volume calculations. Also using devices in the surveying such as tape, chain, level, plan table, planometer.</p>				
Course objectives	<p>The main aim and purpose behind the study of engineering surveying is to</p> <ul style="list-style-type: none"> • The surveyor can possess a thorough understanding of surveying techniques and can determine most efficient methods required to obtain optical results over a wide variety of surveying problems. • Rigorous mathematical techniques are used to analyze and adjust the field survey data. The accuracy and thus the reliability of the survey depend not only on field expertise but also on the understanding the principles. 				
Student's obligation	<p>The students should be available during lecture time table when the student absence more than the allowed hours the student will be dismissed. Students should be doing quizzes, practical reports, seasonal tests and final exams in order to able to collect required mark to success</p>				
Required Learning Materials	<p>During lecturing the data show is used for showing lecture notes using power point program while the white board is used for explanation and solving problems and using surveying instruments in laboratory.</p>				
Evaluation	Task		Weight (Marks)	Due Week	Relevant Learning Outcome
	Paper Review		N/A		
	Assignments	Homework	5%	12	1,2,3
		Class Activity	2%	2	1,2,3
		Report	5%	2	1,2,3
		Seminar	N/A		
		Essay	N/A		
		Project	5%	10	1,2,3
	Quiz		8%	2	1,2
	Lab. Reports and Activity		10%	12	4
Midterm Exam/Theory		10%	1	1,2	

	Final Exam/ Theory	20%	1	1;2
	Midterm Exam/Practical	15%	1	4
	Final Exam/ Practical	20%	1	4
	Total	100%		
Specific learning outcome:	<p>Basic and very important objective of studying Surveying is;</p> <ol style="list-style-type: none"> 1. The Surveying lectures will help students to learn and easily recognize the main aspects of surveying, which is relates to all of the civil engineering and highway engineering works. 2. Familiarise with the fundamental instruments used in surveying. 3. Using most recent software used in surveying 4. Practicing all the basic daily required working procedure in the real civil engineering life on ground. 			
Course References:	<ul style="list-style-type: none"> - Ghilani, C. D. & Wolf, P. R. (2011). "Elementary Surveying: An Introduction to Geometrics". ISBN-10, 132554348, Thirteenth Edition, Manufactured in the United States of America - Barry F. Kavanogh "Surveying Principles and application", 7th edition, Parson Principle hall, parson edition. Inc, upper Saddle River, New Jersey, Columbus , Ohio, 2006 - Late David Clarck " Plan and Geodetic surveying" sixth edition constable and company ltd, London WC2 2001 - S. K. Hussain, "Text book of Surveying", India 2000. 			
Course topics (Theory)		Week	Learning Outcome	
1. Basic Principles.		1	1	
2. Distance measurement and chain surveying.		2-3	1,2	
3. Level and leveling, tests and adjustment of level		4-6	1,2	
4. Fly leveling and Benchmarks Leveling (BM).		7-8	1,2	
5. Cross-section and profile.		9	1,2	
6. Contour and contouring operation.		10	1,2,3	
7. Area measurement and calculation.		11	1,2,3	
8. Volume calculation and correction.		12	1,3	
Practical Topics		Week	Learning Outcome	

1. Length and distance measurement.	1	4
2. Erecting and Dropping Perpendiculars	2	4
3. Offsets-Obstacles in Chain surveying.	3	4
4. Level and leveling, tests	3-6	4
5. Adjustment of level instrument.	7	4
6. Fly level and Benchmarks Leveling (BM).	8	4
7. Cross-section and profile.	9	4
8. Contour and contouring operation.	10-11	4
9. Area measurement and Volume calculation and correction.	12	4

Questions Example Design

Q1 / Define contour line, contour interval and Explain briefly methods of drawing contouring?

Q2) The following consecutive readings were taken with a level on continuously

Sloping ground at a common interval of 20m. The last station has an elevation of 155.272 m. Rule out a page of level book and enter the readings. Calculate

Calculate

(i) The reduced levels of the points by rise and fall and height of instrument methods, and

(ii) the gradient of the line joining the first and last points.

(0.420, 1.115, 2.265, 2.900, 3.615, 0.535, 1.470, 2.815, 3.505, 4.445, 0.605, 1.925, 2.885.)

Q3 a) There are two kinds of Measurements used in Plan Surveying, what are they?

Extra notes:

External Evaluator

As Professor I have reviewed the Course Book related to the subject of surveying for second year, Department of Civil Engineering, College of Technology, I found that the course Book is very good describing the aim and objectives of the subject. Moreover it is covering all the required syllabus and contents of the course and describes satisfactorily the aspects related to the course, which is approved by the department..



**Professor Dr.
Meren Hassan Fahmi**