

Date:	Examination No.: 3	Version:2021-2022	Start:1/9/2022
Module Name - Code	Theory of Errors - 7115		
Module Language:	English		
Responsible:	Asst. Prof. Dr. Mohammed Anwer Jassim		
Lecture (s):	Weekly		
College:	College of Engineering – Salahaddin University-Erbil		
Duration:	15 week – 1 semester		
Course outcomes:	<p>1- The student knows the main classification of errors and their properties.</p> <p>2- The student learns the main corrections of the tape measurements.</p> <p>3- The student knows the main types probability functions and its characteristics.</p> <p>4- The student learns the principle of the expectation and the variance-covariance matrix.</p> <p>5- The student learns the concept of the correlation and coefficient of correlation.</p> <p>6- The student knows the principle of degree of confidence of measurements.</p> <p>7- The student learns law of error propagation in product values in process of assessment of the obtained results.</p>		
Course Content:	<ul style="list-style-type: none"> - Errors & Uncertainty in observations. - Relative Errors, Systematic errors, & Mistakes. - Systematic errors in tape measurements. - Systematic Errors in angle measurements. - Random Errors - Accuracy & Precision. - Target Eccentric Errors. - Instrument Eccentric Errors. - The Probability & probability functions. - Normal distribution curve. - The 50, 90, and 95 percentage errors. - Variance – Covariance matrix. - Coefficient of correlation. - Error Propagation Law. - Error Propagation in product values. 		
Literature:	<ul style="list-style-type: none"> • Alder, K. 2002. The measure of all things – The seven –Year Odyssey and Hidden Error that transformed the world. New York: The free press. • Ghilani C. D. and P. R. Wolf 2006 " Adjustment computations: spatial data analysis. • Surveying Theory and Practice. By Raymond E. Davis. Francis S. Foots • Elementary surveying an introduction to Geomatics. By Charles D. Ghilani & Paul R. Wolf. • Foster R. 2003 " Uncertainty about positional Uncertainty" Point of beginning28 (No.11):40. • Survey adjustments and least squares. By H.F. Rainsford 1979. 		
Type of Teaching:	4 hrs. in lectures		

Pre-requisites:	None
Preparation Modules:	Engineering Statistics
Frequency:	Autumn Semester
Requirements for credit points:	For the award of credit points, it is necessary to pass the module exam. It contains: Three examinations during the academic semester, Assignments and Final examination. Student's attendance is required in all classes.
Credit point:	5
Grade Distribution:	The following grade system is used for the evaluation of the module exam: The module exam is based on the summation of two categories of evaluations: First: (40%) of the mark is based on the academic semester effort which includes - Three examination during the academic semester = 36%. - Assignments = (4%). Second: (60%) of the mark is based on final examination that is comprehensive for the whole of the study materials reviewed during the academic semester.
Work load:	The workload is 135 hrs. It is the result of 45 hrs. attendance and 90 hrs. self-studies (Assignments, preparation for exam and applications).