

Date:	Examination No.: 3	Version:2021-2022	Start:1/9/2022
Module Name - Code	Adjustment Theory - 7131		
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:	1- The student knew the concept of the weights of observations. 2- The student learns the principle of the Least Squares criterion. 3- The student knew the main types of mathematical model and its structure. 4- The student learns the principle of the correlative method. 5- The student learns the principle of the observation equation method. 6- The student learns the principle of the condition equation method. 7- The student learns the accuracy analysis of the above methods and assessment of the obtained results.		
Course Content:	<ul style="list-style-type: none"> - Introduction & weights of observations. - Mathematical model-Types of mathematical model. - Linearization of non-linear mathematical model. - Principle of redundant observations. - Concept of Least squares criterion. - Adjustment by L.S. criterion. - Correlative method of adjustment. - Observation equations method of L.S. adjustment. - Examples of observation method. - Observation method - Non-linear model. - Examples of non-linear model. - Condition equations method of L.S. - Examples of Condition equations method. 		
Literature:	<ul style="list-style-type: none"> - Higher Surveying By Dr Chandra. - Ghilani C. D. and P. R. Wolf 2006 " Adjustment computations: spatial data analysis. - Surveying Theory and practice. By Raymond E. Davis. Francis S. Foote. - Elementary surveying an introduction to geomatics. By Charles D. Ghilani & Paul R wolf. - Linear Algebra, Geodesy, and GPS. By Gilbert strang and Kai Borre. 1997. - Ms C Thesis "The optimal weight of determination positions in Urban Areas" By Mohammed Hasan. 2006-Bagdad Technical College. 		
Type of Teaching:	4 hrs. in lectures		
Pre-requisites:	None		
Preparation Modules:	Theory of Errors.		

Frequency:	Spring Semester and Autumn Semester
Requirements for credit points:	For the award of credit points, it is necessary to pass the module exam. It contains: Three examination during the academic semester, Assignments and Final examination. Student's attendance is required in all classes.
Credit point:	6
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).