Date:	Examination No.:	Version:2021-2022	Start:1/2/2022
Module Name - Code	Basic Surveying Instrument		
Module Language:	English		
Responsible:			
Lecture (s):	Azad Arshad Abdul -Wahab		
College:	College of Engineering – Salahaddin University-Erbil		
Duration:	15 week – Spring semester		
Course outcomes:	The surveying engineer applying many surveying instruments for practical works and this instruments like any instrument after a period of time caused troubles, basic instrument subject is to learning students to check and exam the surveying instruments before using them and calibrate and adjustment them in the field if possible and to save time and if not possible the surveyor must bring the instrument to the special factory for adjusting .		

Course Content:

15 weeks	
1st Week	Test and adjustment of circular bubble for automatic level Test and adjustment of horizontal cross hair for automatic level
2nd Week	Test and adjustment of Line of sight for automatic level The adjustment of refraction
3rd Week	The digital level data collection(main parts and key board)
4th Week	Line levelling and Allowable misclosure
5th Week	Grid levelling and intermediate sight And Data transfer and interface cable
6th Week	The collimation error correction Check and adjust (peg test) procedures
7th Week	The kolida theodolite and RPT of horizontal angle
8thWeek	Inspection and adjustment of tube bubble Inspection and adjustment of vertical cross hair Inspection and adjustment of vertical zero setting
9th Week	Inspection and adjustment of verticality of aiming axis with rotation axis Inspection and adjustment of ground point telescope
10th Week	The DT theodolite

	11th Week	Total station key board and main parts
	12th Week	Inspect and adjustment of constant Inspect and adjustment of parallel of line of sight and emitting leaser
	13th Week	Principles Operation keys
	14th Week	The emap G.P.S -Finding a way point
	15th Week	The emap G.P.S - Track page and Using option menus
Literature:	1-GTS-230 Electronic total station 2-Lieca DNA03/DNA10 User Manual 3-Electronic Theodolite ETD-02/05 Instruction Manual 4-Digital THEODOLITE KT Sieres 5-emap Navigation G.P.S	
Type of Teaching:	4hrs. in lectures 2 Theory + 2 Practical	
Pre-requisites:	None	
Preparation Modules:	1-Giving the students the course book and lectures. Soft copy in moodle and draft copy 2- showing the instruments to the students and explain the procedure 3-Writing on the white board and data show 4- practical applications on level ,digital level ,theodolite , total station , G.P.S instruments .	
Frequency:	Spring 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:	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: 50 %)** of the mark is based on the academic semester effort which includes - Three examination during the academic semester = 36%. - Assignments = (4%). **Second: (50%)** 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 90 hrs. It is the result of 30 hrs. attendance and 60 hrs. self-studies (Assignments, preparation for exam and applications).