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**Department of Plant protection**

**College of Agriculture**

**Salahaddin University-Erbil**

**Subject: Surveying practical**

**Course Book: 2**

**Lecturer's name: MSc. Mohsin Ali Ahmad**

**Academic Year: 2018/2019**

**Course Book**

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| **Course name** | **Year Course**  |
| **Lecturer in charge** | **Mohsin Ali Ahmad** |
| **Department/ College** | **Department of Plant Protection College of Agriculture** |
| **Contact** | **e-mail:** agronomist80@gmail.com**Tel: 07504935099** |
| **Time (in hours) per week** | **Practical: 2**  |
| **Office hours** | **2 hours** |
| **Course overview:**  **Surveying** or **land surveying** is the technique, profession, and science of determining the terrestrial or three-dimensional position of points and the distances and angles between them. A land surveying professional is called a **land surveyor**. These points are usually on the surface of the Earth, and they are often used to establish land [maps](https://en.wikipedia.org/wiki/Maps) and boundaries for [ownership](https://en.wikipedia.org/wiki/Ownership), locations like building corners or the surface location of subsurface features, or other purposes required by government or civil law, such as property sales.Surveyors work with elements of [geometry](https://en.wikipedia.org/wiki/Geometry), [trigonometry](https://en.wikipedia.org/wiki/Trigonometry), [regression analysis](https://en.wikipedia.org/wiki/Regression_analysis), [physics](https://en.wikipedia.org/wiki/Physics), [engineering](https://en.wikipedia.org/wiki/Engineering), [metrology](https://en.wikipedia.org/wiki/Metrology), [programming languages](https://en.wikipedia.org/wiki/Programming_language) and the [law](https://en.wikipedia.org/wiki/Law). They use equipment like [total stations](https://en.wikipedia.org/wiki/Total_station), robotic total stations, GPS receivers, [retro reflectors](https://en.wikipedia.org/wiki/Retroreflector), [3D scanners](https://en.wikipedia.org/wiki/3D_scanner), radios, handheld tablets, digital levels, drones, [GIS](https://en.wikipedia.org/wiki/Geographic_information_system) and [surveying software](https://en.wikipedia.org/wiki/Land_surveying_software). |
| **Course objective:**After the student can complete the subject with the following understanding:See what types of Surveying and ways to divide, as well as knowledge . |
| **Student's obligation**The students should be obligated attendance and completion of all tests, exams, quizzes, assignments |
| **Forms of teaching**This subject somewhat new and complex for our students, we try make our students full understanding by using of power point Data show, white board, video even practice testing. |
| **Assessment scheme*** ‌ **Examinations:-**
* 1st exam. After 4 lectures
* 2nd exam. After 7 lectures

**Mark Distribution** **Monthly Exam 40 %( Theoretical 25% (5% quiz) + Practical 15%) +**  **Final Exam 60% (Theoretical 40% + Practical 20%) = Final** **Mark 100%.** ‌ |
| **Student learning outcome:**1. How to taping in field
2. How to use the level instrument
3. Calculation of elevation
4. Benchmark transferring
5. How to use the level theodolite
6. How to Cut and filled of irregular area
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| **Course Reading List and References‌:**1. Internet.
2. Surveying, Volume [B. C. Punmia](https://www.google.iq/search?tbo=p&tbm=bks&q=inauthor:%22B.+C.+Punmia%22) Firewall Media, Jan 1, 2005 - [Linear Measurements](https://www.google.iq/search?tbo=p&tbm=bks&q=subject:%22Linear+Measurements%22&source=gbs_ge_summary_r&cad=0) - 536 pages
3. Surveying Mimi Das Saikia PHI Learning Pvt. Ltd., 2010 - Surveying - 464 pages
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| **Practical Topics**  | **Lecturer's name** |
| **1** | **Protocol (1) : Distance Measurements:****Aim:** Measuring of distance between two horizontal points. | MSc. Mohsin Ali Ahmad |
| **2** | **PROTOCOL (2):** **Setting out Right Angles** **Aim:** To create right angles in the field to measuring of irregular shaped field. | MSc. Mohsin Ali Ahmad |
| **3** | PROTOCOL (3): Calculating Surface Areas of Irregular Shaped Field**Aim:** surveying or measuring of irregular shaped field by simple tools. | MSc. Mohsin Ali Ahmad |
| **4** | Taping Around Obstacles **Aim:** Overcoming obstacles during taping of horizontal line  | MSc. Mohsin Ali Ahmad |
| **5** | **Setting up an Optical Level:****Aim:**  Introducing optical level and function of its parts and installing it on tripods and reading of staff numbers. | MSc. Mohsin Ali Ahmad |
|  | **Examination** |  |
| **6** | PROTOCOL (6): **Differential Leveling (Elevations):****Aim:**  To measurement of geodetic height by using an optical levelling instrument and a level staff or rod having a numbered scale. | MSc. Mohsin Ali Ahmad |
| **7** | PROTOCOL(7)Procedure (1): **Error correction** **in Closed loop level traverse Elevation:** | MSc. Mohsin Ali Ahmad |
| **8** | Protocol (8) Topographic Survey (contouring):  | MSc. Mohsin Ali Ahmad |
| **9** | **Protocol (9):**  **The Using of Theodolite****Aim:** Setting up a theodolite instrument and Measurement of horizontal and vertical angles. | MSc. Mohsin Ali Ahmad |
|  | **Examination** |  |
| **Examinations:**Orally  |
| **Peer review: پێداچوونه‌وه‌ی هاوه‌ڵ:**  |