Module (Course Syllabus) Catalogue

2023-2024

College/ Institute	Erbil Technology College	
Department	Surveying	
Module Name	Cadastral Surveying	
Module Code	CAS304	
Semester	Third	
Credits	4	
Module type	Prerequisite ☐ Core ■ Assist. ☐	
Weekly hours	2	
Weekly hours (Theory)	( )hr Class	(102)hr Workload
Weekly hours (Practical)	( )hr Class	( )hr Workload
Lecturer (Theory)	Hemin Gaylany Ahmed	
E-Mail & Mobile NO.	hemin.ahmed@epu.edu.iq 07504658096	
Lecturer (Practical)	----	
E-Mail & Mobile NO.	----	

Course Book

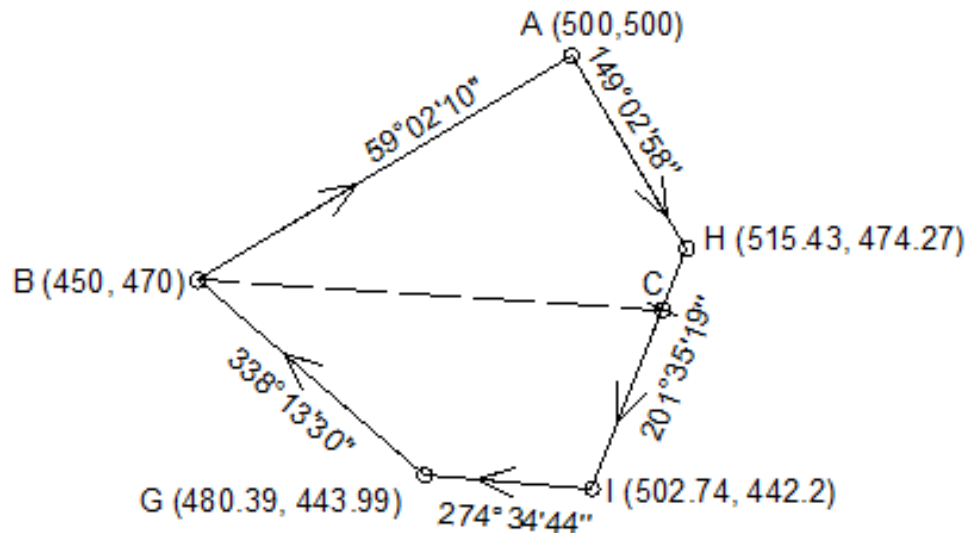|	
Course Description	Consider the article of cadastral survey is one of the main important items for second stage (Third Semester) in surveying department which is one of the near sciences in engineering closely to daily life's where we needed to: 1- To remove the arguments between persons and companies or countries with divergence between them. 2- Job example with suitable scales which is exist in natures like : (Residential facilities, governmental building, services, industrials, roads, bridges, sewerage, channels, dischargers, irrigations, rivers,...etc) these examples are useful to developing this areas by input it the services and building up.
Course objectives	Learning and exercise the students to do the corollary computations to get the lengths and directions of a boundary of land and coordinates of corner points with computing his area and solution of problems in intersections and reverse computation then subdivision of lands and computing area of parts.
Student's obligation	Students must: Attend lectures, and should attend on time. Listen carefully to the lecturer. Draw attention of all lectures if they have problem. Attending all exams and quizzes. Doing assignment and project. During lecture should respect lectures' Rule such as; speaking, switching off mobile and all electronic devices, and ….. etc.
Required Learning Materials	Includes preparing slides using data show devices and for solving problems should use white board.
Assessment scheme	10% Homework 2% Class Activity 16% (Report, Seminar, Paper, Essay, Project) ⎫ 60% 8% Quiz 24% Mid Term (Theory) ⎭ 40% Final
Specific learning outcome:	At the end of course the student can understand overall aspects of this subject they will improve it in future even the subject is rarely being used for land surveying but the necessities of this kind of job is becoming very demandable by some company and government sectors . Then student can improve and enhance his/her carrier based on the terminologies comprehended in the cadastral surveying.

Course References:	▪ Useful references: ➢ *Elementary Surveying (Twelfth Edition) Charles D. & Paul R. Wolf.* ➢ *Surveying and Leveling, (Part 2), T.P. Kanetkar S.V. Kulkarni.* ➢ *Engineering Surveying - Vol. (1), W. Schofield (Newness- Butter Worth, London, England).* ➢ *A Text book of Advanced Surveying , R.AGOR, 684P.* ➢ *Engineering Surveying, 6th Ed, W. Schofield , 637P.* ➢ *Surveying Problem Solving, Dr A M Chandra, 338P.*

Course topics (Theory)	Week	Learning Outcome
Cadastral survey/ Introduction, application, cadastral map, Directions and angles.	1st	
Forward and Back Directions.	2nd	
Forward and Reverse Computations	3rd	
Intersections or unknown (Omitted) measurements.		
Intersection I, Two lengths are unknown.	4th & 5th	
Intersection II, Length of side and Azimuth of another side are unknown.	6th & 7th	
Intersection III, Two Directions (Azimuths) are unknown.	8th & 9th	
Subdivision of Land	10th, 11th & 12th	
Practical Topics	**Week**	**Learning Outcome**

Questions Example Design

Example: For the area shown below, it is required to find the length and direction of line which dividing it to two equal parts and passing through point B.
SOLUTION:

A (500,500)
59°02'10"
149°02'58"
H (515.43, 474.27)
B (450, 470)
C
338°13'30"
201°35'19"
G (480.39, 443.99) 274°34'44" I (502.74, 442.2)

- *Area (AHIGB)*

$$\frac{450}{470}\ \frac{500}{500}\ \frac{515.43}{474.27}\ \frac{502.74}{442.2}\ \frac{480.39}{443.99}\ \frac{450}{470}$$

2 Area = -4320.479 m²

Area = $\left|\frac{-4320.479}{2}\right|$ *= 2160.24 m²*

- *AZ BH=*$tan^{-1}\frac{515.43-450}{474.27-470} = 86°15'58''$

  Length BH = $\sqrt{\Delta E^2 + \Delta N^2} = 65.57\ m$

- *Find angle BHC = u = Back AZ BH − AZ HC*

$$= (86°15'58'' + 180°00'00'') - 201°35'19''$$

$$= 64°40'39''$$

- *Find area of BHIG = 1285.54 m²(by the coordinate method)*

$$\frac{450}{470}\ \frac{515.43}{474.27}\ \frac{502.74}{442.2}\ \frac{480.39}{443.99}\ \frac{450}{470}$$

2 Area = -2571.08 m²

$$Area = \left| \frac{-2571.08}{2} \right| = 1285.54 \ m^2$$

- *Compute area of triangle BHC = Area of BHIG - $\frac{1}{2}$ total area AHIGB*

$$= 1285.54 - \left(\frac{1}{2} \times 2160.24 \right)$$

$$= 205.42 \ m^2$$

- *Find length HC*

Area of $\triangle$ BHC = $\frac{1}{2} \times BH \times HC \times sin\,u$

$$HC = \frac{2 \times 205.42}{65.57 \times sin\ 64°40'39''} = 6.93 \ m$$

- *Find coordinates of C*

$$E_C = 515.43 + 6.93 \times sin\ 201°35'19'' \Rightarrow E_C = 512.88 \ m$$

$$N_C = 474.27 + 6.93 \times cos\ 201°35'19'' \Rightarrow N_C = 467.83 \ m$$

- *Length and direction of the line BC.(450, 470), (512.88, 467.83)m*

$$AZ\ BH = tan^{-1} \frac{512.88 - 450}{470 - 467.83} = 88°01'24.59''$$

$$AZ\ BH = 180°00'00'' - 88°01'24.59'' = 91°58'35.41''$$

$$Length\ BH = \sqrt{(512.88 - 450\ )^2 + (470 - 467.83)^2} = 62.92 \ m$$

Extra notes:

External Evaluator

This course book is reviewed by (Ahmad Redha Abdulrahman) as he is a lecturer in Surveying department in Erbil Technology College. He assessed and approved all content of the Cadastral Surveying subject as he admitted the course book is almost covered the several terms of Cadastral Surveying in its theoretical aspects. The course can be presented in the classes for entire curriculum year.

Ahmad Redha Abdulrahman

signature   ---------------------------------------