



Department of Architectural Engineering
College of Engineering
University of Cihan- Sulaimaniya

Subject: Surveying Engineering and GIS
Course Book – Year 3

Lecturer's name: Diyari Burhan Hussein

Academic Year: 2023/2024

Course Book

1. Course name	Surveying Engineering and GIS
2. Lecturer in charge	Diyari Burhan Hussein
3. Department/ College	Architecture/Engineering
4. Time (in hours) per week	Theory: 2 Practical: 2
5. Office hours	Tuesday (10:30 am - 12:30 pm)
6. Course code	ARC083109
7. Teacher's academic profile	Earned the bachelors degree in civil engineering at university of Sulaimani, Sulaymaneyh/Iraq, and the master's degree in structural engineering at Budapest University of Technoly and Economicsthat, Budapest/Hungary, and individual thesis that was 'Comparative analysis of strengthening methods for RC monolithic columns'.
8. Keywords	
9. Course overview:	<p>This lecture is intended to provide the student with clear and through presentation of theory and practical surveying in the field.</p> <p>Surveying have interrelationship with architectural engineering because the output of survey operation as represented by a map(s) or a plan(s) will be used in the design process.</p> <p>The architecture student can understand the physical characteristics of the site using the topographic map. The setting out of the set of plans of any project on the ground who's designed by the architectural student using some procedures which taught in this course of surveying.</p> <p>All branches of engineering whose act on the ground must teach from this course the techniques of identifying the position of the point(s) in its three dimensions. This course wishes to provide spatial problem solving and decision making.</p>
11. Course objective:	<p>This course is to introduce the basic principles of surveying. The major theme is the relationship between surveying and architectural design and the goals of this course are:</p>

- To give the scientific procedures of technical measurements concerning linear and angular measurements.
- To introduce the theory of error in measurements and how can he/she minimizing the errors and proceed the allowable error.
- To learn different procedures to produce digital map for the ground or setting out those given plan(s), and then make various computation to find any useful information concerning the site of projects.
- To make precise measurements for determining the positions of points on ground.
- To provide permanent control points from which projects can be surveyed.
- To measure horizontal and vertical distances that are usefull for positioning projects and finding the heights of building.
- To draw contour lines and determine the areas of land.

11. Student's obligation

Students should be on the commitment with lectures, write reports on individual practical surveying and prepare themselves for exams and quizzes.

Students will get a warning after absence 8% of the contact hours of theoretical lectures and will fail if they miss more than 10%.

12. Forms of teaching

- ✓ **Data show**
- ✓ **Whiteboard**
- ✓ **Fields for practical surveying**

13. Assessment scheme

Mid-Term:

10% practical reports

10% Practical Exam

30% Theoretical Exam

Final Term:

10% practical reports

10% Practical Exam

30% Final Theoretical Exam

Second Term:

20% Practical Exam

30% Final Theoretical Exam

14. Student learning outcome:

On successful completion of this module students will be able to:

1. Understand the basic principles of surveying.
2. Determine the errors in measurements and minimize the errors.
3. Use levels and theodolite for surveying.
4. Take precise measurements for determining the positions of points on ground.
5. Provide permanent control points from which projects can be measured and plotted.
6. Measuring horizontal and vertical distances, positioning projects and measuring the heights of building.

drawing contour lines and calculating the areas of land.

15. Course Reading List and References:

1. محاضرات في المساحة المستوية – اعداد- ازمر شوكت زنكنة 2007
2. Surveying. (Volume 1) by Dr.B.C.Punmia; Ashok K.Jain; Arun K. Jain., 2005
3. Surveying. (Volume 2) by Dr.B.C.Punmia; Ashok K.Jain; Arun K. Jain., 2005
4. Surveying. (Volume 3) by Dr.B.C.Punmia; Ashok K.Jain; Arun K. Jain., 2005
5. Davis R.E, Msc. & Mikhail E.M., PhD., Surveying theory and practice .Mc Graw-Hill Book Company
6. Surveing by Jack McComrac, fifth edition, 2004
7. Plane and geodetic surveying by Aylmer Johnson, 2004
8. Engineering surveying by Schofield; M Breach, six edition 2007
9. Surveying- Problem solving with theory and objective type questions by Dr M A Chandra, 2005
10. Surveying principles and applications by Barry F. Kavanagh 7th edition 2005
11. Textbook of Surveying by S.K.Husain; M.S.Nagaraj, 1978

16. The Topics:

Lecture No	Topic
1	Introduction and the importance of surveying.
2	Introducing technical surveying words
3	Linear measurement of distance
4	Planimetric survey of a small plot with straight lines
5	Planimetric survey of a building by using cloth tape and prism
6	Setting up the level instrument
7	Direct levelling (mid-point + forward levelling)
8	Reciprocal levelling
9	Series levelling
10	Closed levelling

11	Longitudinal section
12	Cross section levelling
13	Contouring
14	Curve measurement
15	Theodolite instrument(types, uses, and setting up)
16	Measuring height and distances – tangential system
Final Examination	

17. Peer review

**Main Lecturer incharged
Diyari Burhan Hussein**

**Head of The Department
Mrs. Tara Azad Rauof**