Course Specification
(Bachelor)

Course Title:	Plane Surveying
Course Code:	CE 1701
Program:	Bachelor of Science in Civil Engineering
Department:	Civil Engineering Department
College:	College of Engineering and Architecture
Institution:	Umm Al Qura University
Version:	1
Last Revision Date:	31 January 2025

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A. General information about the course:

1. Course Identification

1. Credit hours: (3)					
2. Course type					
A.	☐ University	☐ College	☒ Department	☐ Track	☐ Others
B.	☒ Required		☐ Elective		
3. Level/year at which this course is offered: (4)					
4. Course General Description:					
The course presents the basic concept of engineering surveying including the systems of units, different types of map scales, methods of distance measurements, sources and types of errors in distance measurements, different techniques for area calculation methods, leveling process, grid levelling, Profile and cross section leveling, Contour maps, Volume calculation and mass diagram, and finally the direction and azimuth of lines.					
5. Pre-requirements for this course:					
Engineering Numerical Methods (CE 3001)					
6. Co-requisites for this course:					
Topographic & photogrammetric survey (CE 2702)					
7. Course Main Objective(s):					
a- **The course aims to increase the ability of students to recognize the details of plane surveying and its elements.** b- **To conduct experiments, as well as to analyze and interpret data required for solving surveying problem**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100%
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	30
2.	**Laboratory/Studio**	45
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		75

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	To recognize the basics of plane survey such as units, scale, distance measurements, area calculation, levelling, earth work volume, profiling, and directions.	**K1**	Lectures, Discussion	Written Exam
1.2	To understand, train, and practice some different surveying instruments.	**K2**	Lab Experiments Discussion	Lab Exam
2.0	**Skills**			
2.1	To conduct experiments as well as to analyze and interprate data that required for solving surveying problems.	**S2**	Lab groups Discussion	Written Exam Lab Exam
2.2	To understand the different surveying techniques that used in plane survey.	**S3**	Lectures Discussion Lab	Written Exam Lab Exam
3.0	**Values, autonomy, and responsibility**			
3.1	To function		Discussion	Exercises

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
	effectively in multidisciplinary terms and surveying projects.	**V2**	Lab working group	

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to plane survey	5
2.	Units	5
3.	Map Scale	5
4.	Distance measurements (1)	5
5.	Distance measurements (2)	5
6.	Errors	5
7.	Area calculation methods (1)	5
8.	Area calculation methods (2)	5
9.	Levelling (1)	5
10.	Levelling (2)	5
11.	Grid levelling and contour maps	5
12.	Earth work volume calculations	5
13.	Longitudinal and cross sections	5
14.	Azimuth and direction of lines	5
15.	Introductory to GPS	5
Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	4, 7, 9, 11, 13	10%
2.	Mid Term Exam	8	20%
3.	Lab Exam	15	20%
4.	Final Exam	16	50%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Barry F. K. and Gelnnbind, S. J. "Surveying, Principles and Applications", 9th Edition. Prentice Hall, 2014.
Supportive References	Wolf, P. R., and Ghilani, C. D. "Elementary Surveying", 14th Edition, Prentice Hall, 2015
Electronic Materials	Power point files.
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	NA
Technology equipment (projector, smart board, software)	A Smart Board is needed
Other equipment (depending on the nature of the specialty)	Printers and laptops for staff members with required computer software programs are required.

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty members who teach this course	• Students questioners running at the semester end. • Analysis of students` marks Regular feedback of the students about the course and the teaching methods
Effectiveness of Students assessment	Faculty members who teach this course.	Regular revising and improving of the course contents.
Quality of learning resources	**Program Leaders**	Frequent improvement for teaching and learning techniques.
The extent to which CLOs have been achieved	Independent member(s) teaching staff	A sample of students' answer sheets is revised by a specified committee of the department
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewers, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	CIVIL ENGINEERING COUNCIL
REFERENCE NO.	THE FIFTEENTH SESSION OF THE ACADEMIC YEAR 1446
DATE	30 APRIL 2025

