18 Course Specification of Surveying 1

I. Course Identification and General Information:							
1	**Course Title:**	***Surveying 1***					
2	**Course Code &Number:**	CE101					
3	**Credit hours:**	C.H				**Credit Hours**	
		Th.	**Tu.**	**Pr.**	**Tr.**		
		2	2		2	4	
4	**Study level/ semester at which this course is offered:**	2nd Level/ 1st semester					
5	**Pre –requisite (if any):**						
6	**Co –requisite (if any):**						
8	**Program (s) in which the course is offered:**	Civil Engineering					
9	**Language of teaching the course:**	English+ Arabic					
10	**Location of teaching the course:**	Class room + site					
11	**Prepared By:**	Eng. Ahmed Saleh					
12	**Date of Approval**						

II. Course Description:

This course aims to provide students with an understanding of basic concepts of surveying in the field, types of measurements, the map scale, errors in the process of measurements of linear measurements. It enables students to calculate the earth works quantity from the cross-sections and longitudinal sections, know Definition of contour line, the advantages of contour lines, understand the areas of direct and indirect methods, and use tape, planimeter, compass and level instruments for field works.

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III. Course Intended learning outcomes (CILOs) of the course		Referenced PILOs
a.1	Define the basic concepts of surveying, scales, surveying, calculate of areas, leveling and related thereto.	**A1**
a.2	Describe the process of the surveying in the practical life.	**A5**
b.1	Select the appropriate device for the required field work	**B1**
b.2	Analyze various types of errors during measurements and different kinds of methods for the error adjustment	**B2**
c.1	Use the surveying devices (tape – compass- level – planimeter) in field measurements	**C1**
c.2	Apply the various surveying skills and methods to measure relative heights, Levels	**C2**
d.1	Engage with colleagues to draw different **contour** maps;	**D1**
d.2	Perform the tasks and costs entrusted to him by studying the course individually or within with high efficiency.	**D3**

(A) Alignment Course Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
a1 - Define the basic concepts of surveying, scales, surveying, calculate of areas, leveling and related thereto.	- Lecture - Dialogue and discussion - Problem Solving	Problem set- Written exam- Written assignment
a2-Describe the process of the surveying in the practical life**.**	- Lecture - Dialogue and discussion - Problem Solving	Project - Written exam- Written assignment

(B) Alignment Course Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
b1- Select the appropriate device to work	- Lecture - Dialogue and discussion - Brainstorming - Problem Solving - Practical application	Participation- Written assignment-Project
b2 - Analyze various types of errors during measurements and different kinds of methods for the error adjustment	- Lecture - Dialogue and discussion - Brainstorming - Problem Solving - Practical application	Participation- Written assignment-Project

C Alignment Course Intended Learning Outcomes of Professional and Practical Skillsto Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
c1 -Use the surveying devices (meter – compass level – plan meter) in field measurements	- Dialogue and discussion - Brainstorming - Problem Solving - Practical application	Written report and drawing - Group work – final exam
c2 -Apply the various surveying skills and methods to measure relative heights, Level	- Lecture and Site - Dialogue and discussion - Brainstorming - Problem Solving - Practical application	Written report and drawing - Group work

(D) Alignment Course Intended Learning Outcomes of Transferable Skillsto Teaching Strategies and Assessment Strategies:		
Course Intended Learning Outcomes	Teaching strategies	Assessment Strategies
d1 -Engage with colleagues to draw different **contour** maps;	- Brainstorming - Problem Solving - Practical application	Write the project ,report including calculation and drawing
d2-Perform the tasks and costs entrusted to him by studying the course individually or within with high efficiency.	- Lecture - Dialogue and discussion - Brainstorming - Problem Solving - Practical application	Write the project design report including calculation and drawing

IV. Course Content:

A – Theoretical Aspect:

Order	Units/Topics List	Learning Outcomes	Sub Topics List	Number of Weeks	contact hours
1	**Introductions**	a1	-General introduction of plane surveying. -Definition of surveying. -Branches and types of surveying. -Measurement units.	1	2
2	**Scales**	a1, b2, d1	-Scale drawing. -Definition of drawing scale. -The importance of drawing scale in surveying. -Types of drawing scales. -Design and conclusion of the drawing scale.	1	2
3	**Measurements**	a1, b1, b2 ,d2	-Longitudinal measurements. -Measure distances and deduce horizontal distance. -Corrections needed for tape measurements.	1	2

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4	**Engineering Operations**	a1, b1, b2, d2	-Engineering processes and measurement obstacles. -Some engineering operations. -Types of obstacles and how to overcome them.	1	2
5	**Surveying**	a1, b1, b2, d2	-Definition of surveying and types of surveying. -Surveying by using prismatic compass.	3	6
6	**Areas**	a1, a2, b1, b2, ,d2	-The importance of calculate areas in civil engineering. -methods of calculating areas (direct and indirect methods).	2	4
7	**Leveling**	a1, a2, b1, b2, ,d2	-Definition of levelling and importance in civil engineering. -Types of levelling -Instrument used in the levelling -Levelling Uses -Contour lines and their characteristics -Calculate the quantities of earthworks.	5	10
Number of Weeks /and Units Per Semester				**14**	**28**

B – Tutorial Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Problems on scales	1	2	a1, a2, b1, b2. d1
2	Problems on measuring distances and errors correction	1	2	a1, a2, b1, b2. d1
3	Problems of obstacles	1	2	a1, a2, b1, b2. d1
4	Problems of surveying	1	2	a1, a2, b1, b2. d1
5	Problems of land areas calculations	2	4	a1, a2, b1, b2. d1

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6	Problems of correcting compass observations for blunders, gravity errors and calculate the area using coordinates method.	2	4	a1, a2, b1, b2. d1
7	Problems of levelling and calculations of quantities of earthworks	6	12	a1, a2, b1, b2. d1
Number of Weeks /and Units Per Semester12		**14**	**28**	

C - Training Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
1	Lecture how to write engineering repots	1	2	a1, c1
2	Training on how to measure a distance longer than the length of the tape and the required corrections	1	2	b1, c1, c2, d1, d2
3	Training on how to set up a column from a point on a straight line, how to drop a column from an outside on a straight line, types of obstacles in measurement and how to overcome	1	2	b1, c1, c2, d1, d2
4	Training on surveying, using tape and engineering operations	2	4	b1, c1, c2, d1, d2
5	Training surveying of tape and compass	2	4	a1, a2, b1, c1, c2. d1
6	Training to find the area on ground by applying different methods	1	2	a1, a2, b1, b2, c1, c2. d1
7	Training on how to find areas from maps or charts	1	2	a1, a2, b1, b2, c1, c2. d1
8	To identify the instrument and pursuits for the leveling	1	2	a1, a2, b1, b2, c1, c2. d1
9	Training on longitudinal levelling	1	2	a1, a2, b1, b2, c1, c2. d1
10	Training on network levelling	3	6	a1, a2, b1, b2, c1, c2. d1
Number of Weeks /and Units Per Semester		**14**	**28**	

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V. Teaching strategies of the course:

- Lecture
- Dialogue and discussion
- Brainstorming
- Problem Solving
- Practical application

VI. Assignments:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Problems on scales	a1, a2, b1, b2, d1	2	0.5
2	Problems on measuring distances and errors correction	a1, a2, b1, b2, d1	3	0.5
3	Problem of obstacles	a1, a2, b1, b2, d1	4	0.5
4	Problem of surveying	a1, a2, b1, b2, d1	6	0.5
5	Problem of land areas calculations	a1, a2, b1, b2, d1	8	0.5
6	Problem of levelling	a1, a2, b1, b2, d1	10	0.5

VII. Reports:

No	Assignments	Aligned CILOs(symbols)	Week Due	Mark
1	Report of measure a distance longer than the length of the type and corrections needed	b1, c1, c2, d1, d2	1	1.5
2	Report of set up a column from a point on a straight line, how to drop a column from an outside on a straight line, types of obstacles in measurement and how to overcame	b1, c1, c2, d1, d2	2	1.5
3	Report of surveying by using tape only	b1, c1, c2, d1, d2	3	1.5
4	Report of surveying of tape and compass	a1, a2, b1, c1, c2. d1	5	1.5

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5	Training to find the area on ground by applying different methods	a1, a2, b1, b2, c1, c2. d1	6	1.5
6	Report of find area from maps or charts	a1, a2, b1, b2, c1, c2. d1	7	1.5
7	Report of the instrument and pursuits for the leveling	a1, a2, b1, b2, c1, c2. d1	8	1.5
8	Report on longitudinal levelling	a1, a2, b1, b2, c1, c2. d1	9	1.5
9	Report on network levelling	a1, a2, b1, b2, c1, c2. d1	10	2

VIII. Schedule of Assessment Tasks for Students During the Semester:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Tasks and Assignments	weekly	3	2%	a1, a2, b1, b2. d1
2	Quiz 1&2	4,10	4,5	3%	a1, a2, b1, b2. d1
3	Midterm Exam	7	22.5	15%	a1, a2, b1, b2, c1, c2. d1, d2
4	Reports	weekly	15	10%	b1, b2.c1, c2d1, d2
5	Final Exam (practical + Rep.)	13	15	10%	a1, a2, b1, b2, c1, c2. d1, d2
6	Final Exam (theoretical)	14	90	60%	a1, a2, b1, b2, c1, c2. d1, d2
	Sum		**150**	**100%**	

IX. Learning Resources:

- Written in the following order: (Author - Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1-Engineering Survey, first edition 2015
2- practically Course work in the field.

2- Essential References.

	1-fundamental Surveying 2-Orgins in the Survey , 2001
3- Electronic Materials and Web Sites etc.	

	X. Course Policies:
1	**Class Attendance:** - The regulations are applied, which state that a student who desires more than 25% of attending lectures is deprived of the final examination.
2	**Tardy:** - If the student is late for attending the lecture time, his degree will be deducted for each delay in the attendance grades.
3	**Exam Attendance/Punctuality:** - The student must rely on himself for exam.
4	**Assignments & Projects:** - None
5	**Cheating:** - If the student is caught cheating, he will be deprived of the exam in the subject.
6	**Plagiarism:** - In the case of student impersonation, the Vice Dean for student Affairs will be referred to the College's Student Affairs Committee the necessary action.
7	**Other policies:** - If the student dose not attend more than 75% in the process, he will be deprived of the practical exam.

Reviewed By	**Vice Dean for Academic Affairs and Post Graduate Studies** **Dr. Tarek A. Barakat** **Dr. Mohammad Algorafi** **Eng. Bashir Al-Maswari**
	Deputy Rector for Academic Affairs Dr. Ibrahim AlMutaa **Dr. Ahmed mujahed** **Dr. Munaser Alsubri**

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Template for Course Plan (Syllabus)

I. Information about Faculty Member Responsible for the Course:							
Name of Faculty Member	En. Ahmed M. Saleh	**Office Hours**					
Location &Telephone No.	Engineering Faculty	**SAT**	**SUN**	**MON**	**TUE**	**WED**	**THU**
E-mail	Saahmed299@gmail.com			8 - 12			

II. Course Identification and General Information:						
1-	**Course Title:**	***Surveying 1***				
2-	**Course Number & Code:**	CE101				
3-	**Credit hours:**	**C.H**				**Credit Hours**
		Th.	**Tu.**	**Pr.**	**Tr.**	
		2	2		2	4
4-	**Study level/year at which this course is offered:**	2nd Level / 1st semester				
5-	**Pre –requisite (if any):**					
6-	**Co –requisite (if any):**					
7-	**Program (s) in which the course is offered**	Civil Engineering				
8-	**Language of teaching the course:**	Arabic				
9-	**System of Study:**	Regular				
10-	**Mode of delivery:**	Lecture				
11-	**Location of teaching the course:**	Class + site				

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II. Course Description:

This course aims to provide students with an understanding of basic concepts of surveying in the field, types of measurements, the map scale, errors in the process of measurements of linear measurements. It enables students to calculate the earth works quantity from the cross-sections and longitudinal sections, know Definition of contour line, the advantages of contour lines, understand the areas of direct and indirect methods, and use tape, planimeter, compass and level instruments for field works.

IV. Intended learning outcomes (ILOs) of the course:

- **Brief summary of the knowledge or skill the course is intended to develop:**

a.1 Define the basic concepts of surveying, scales, surveying, calculate of areas, leveling and related thereto. **A1**

a.2 Describe the process of the surveying in the practical life. **A5**

b.1 Select the appropriate device for the required field work **B1**

b.2 Analyze various types of errors during measurements and different kinds of methods for the error adjustment **B2**

c.1 Use the surveying devices (tape – compass- level – planimeter) in field measurements. **C1**

c.2 Apply the various surveying skills and methods to measure relative heights, Levels. **C2**

d.1 Engage with colleagues to draw different contour maps; **D1**

d.2 Perform the tasks and costs entrusted to him by studying the course individually or within with high efficiency. **D3**

V. Course Content:

- **Distribution of Semester Weekly Plan Of course Topics/Items and Activities.**

A – Theoretical Aspect:

Order	Topics List	Sub Topics List	Week Due	Contact Hours
1	**Introductions**	-General introduction of plane surveying. -Definition of surveying. -Branches and types of surveying. -Measurement units.	1	2
2	**Scales**	-Scale drawing. -Definition of drawing scale. -The importance of drawing scale in surveying. -Types of drawing scales. -Design and conclusion of the drawing scale.	2	2
3	**Measurements**	-Longitudinal measurements. -Measure distances and deduce horizontal distance. -Corrections needed for tape measurements.	3	2
4	**Engineering Operations**	-Engineering processes and measurement obstacles. -Some engineering operations. -Types of obstacles and how to overcome them.	4	2
5	**Surveying**	-Definition of surveying and types of surveying. -Surveying by using prismatic compass.	5,6,7	6
6	**Midterm Exam**		8	2
7	**Areas**	-The importance of calculate areas in civil engineering. -methods of calculating areas (direct and indirect methods).	9,10	4

8	**Leveling**	-Definition of levelling and importance in civil engineering. -Types of levelling -Instrument used in the levelling -Levelling Uses -Contour lines and their characteristics -Calculate the quantities of earthworks.	11,12, 13,14, 15	10
9	**Final Exam**		16	2
Number of Weeks /and Units Per Semester			**16**	**32**

B – Tutorial Aspect:				
Order	**Tasks/ Experiments**	**Number of Weeks**	**contact hours**	**Learning Outcomes**
1	Problems on scales	1	2	a1,a2,b1,b2.d1
2	Problems on measuring distances and errors correction	2	2	a1,a2,b1,b2.d1
3	Problems of obstacles	3	2	a1,a2,b1,b2.d1
4	Problems of surveying	4	2	a1,a2,b1,b2.d1
5	Problems of land areas calculations	5,6	4	a1,a2,b1,b2.d1
6	Problems of correcting compass observations for blunders, gravity errors and calculate the area using coordinates method.	7,8	4	a1,a2,b1,b2.d1
7	Problems of levelling and calculations of quantities of earthworks	9,10,11,12 ,13,14	12	a1,a2,b1,b2.d1
Number of Weeks /and Units Per Semester		**14**	**28**	

C – Training Aspect:			
Order	**Topics List**	**Week Due**	**Contact Hours**
1	Lecture how to write engineering repots	1	2
2	Training on how to measure a distance longer than the length of the tape and the required corrections	2	2
3	Training on how to set up a column from a point on a straight line, how to drop a column from an outside on a straight line, types of obstacles in measurement and how to overcome	3	2
4	Training on surveying, using tape and engineering operations	4,5	4
5	Training surveying of tape and compass	6,7	4
6	Training to find the area on ground by applying different methods	8	2
7	Training on how to find areas from maps or charts	9	2
8	Identifying the instrument and pursuits for the leveling	10	2
9	Training on longitudinal leveling	11	2
10	Training on network leveling	12,13,14	6
Number of Weeks /and Units Per Semester		**14**	**28**

VI. Teaching strategies of the course:

- Lecture
- Dialogue and discussion
- Brainstorming
- Problem Solving
- Practical application
- Projects
- Reports and Drawing

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VII. Assignments:				
No	**Assignments**	**Aligned CILOs(symbols)**	**Week Due**	**Mark**
1	Problems on scales	a1,a2,b1,b2.d1	2	0.5
2	Problems on measuring distances and errors correction	a1,a2,b1,b2.d1	3	0.5
3	Problem of obstacles	a1,a2,b1,b2.d1	4	0.5
4	Problem of surveying	a1,a2,b1,b2.d1	6	0.5
5	Problem of land areas calculations	a1,a2,b1,b2.d1	8	0.5
6	Problem of levelling	a1,a2,b1,b2.d1	10	0.5

I. Reports:				
No	**Assignments**	**Aligned CILOs(symbols)**	**Week Due**	**Mark**
1	Report of measure a distance longer than the length of the type and corrections needed	b1,c1,c2,d1,d2	1	1.5
2	Report of set up a column from a point on a straight line, how to drop a column from an outside on a straight line, types of obstacles in measurement and how to overcame	b1,c1,c2,d1,d2	2	1.5
3	Report of surveying by using tape only	b1,c1,c2,d1,d2	3	1.5
4	Report of surveying of tape and compass	a1,a2,b1,c1,c2.d1	5	1.5
5	Training to find the area on ground by applying different methods	a1,a2,b1,b2,c1,c2.d1	6	1.5
6	Report of find area from maps or charts	a1,a2,b1,b2,c1,c2.d1	7	1.5
7	Report of the instrument and pursuits for the leveling	a1,a2,b1,b2,c1,c2.d1	8	1.5
8	Report on longitudinal leveling	a1,a2,b1,b2,c1,c2.d1	9	1.5
9	Report on network leveling	a1,a2,b1,b2,c1,c2.d1	10	2

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VIII. Schedule of Assessment Tasks for Students During the Semester:

Assessment	Type of Assessment Tasks	Week Due	Mark	Proportion of Final Assessment
1	Tasks and Assignments	weekly	3	2%
2	Quiz 1& 2	4, 10	4,5	3%
3	Midterm Exam	7	22.5	15%
4	Reports	weekly	15	10%
5	Final Exam (practical + Rep.)	13	15	10%
6	Final Exam (theoretical)	14	90	60%

IX. Learning Resources:

- Written in the following order: (Author – Year of publication – Title – Edition – Place of publication – Publisher).

1- Required Textbook(s) (maximum two).

1- Engineering Survey, first edition 2015
2-practically Course work in the filed

2- Essential References.

1-Fundamental Surveying
2-Orgins in the Survey , 2001

3- Electronic Materials and Web Sites etc.

XI. Course Policies:

Unless otherwise stated, the normal course administration policies and rules of the Faculty of ----- apply. For the policy, see: ----------

1	**Class Attendance:** - The regulations are applied, which state that a student who desires more than 25% of attending lectures is deprived of the final examination.
2	**Tardy:** - If the student is late for attending the lecture time, his degree will be deducted for each delay in the attendance grades.
3	**Exam Attendance/Punctuality:** - The student must rely on himself for exam.
4	**Assignments & Projects:** -none
5	**Cheating:** - If the student is caught cheating, he will be deprived of the exam in the subject.
6	**Plagiarism:** - In the case of student impersonation, the Vice Dean for student Affairs will be referred to the College's Student Affairs Committee the necessary action.
7	**Other policies:** - If the student dose not attend more than 75% in the process, he will be deprived of the practical exam.