

FUE - Future University in Egypt

Faculty of Engineering and Technology Department of Architectural Engineering

Course Specifications

SCM 223: Surveying

Programme (s) on which the course is given:	B.Sc. in Architectural Engineering
Major or minor element of programmes:	(Not Applicable)
Department offering the programme:	Architectural Engineering
Department offering the course:	Structural Engineering & Construction Management
Academic year/Level:	Level Two – 4 th semester
Date of specification approval:	November 2017

A- Basic Information

Title: Surveying	Code: SCM 223
Credit Hours:	2 Cr. Hrs.
Lectures:	2 Hrs.
Tutorial:	<u>2 Hrs.</u>
Total:	4 Hrs.
Prerequisite:	None

B- Professional Information

1- Catalog Course Description:

Basic elements of surveying and their architectural applications, Plotting scales, verniers, linear of angular and simple angular measurement devices, Chain surveying, Leveling & theodolites, Map drawing, Photogrammetry and its architectural applications.

2- Overall aims of the course:

Upon successful completion of the course, the student should be able to:

- Different units systems and how to transform among them.
- Distance measurements operations and its usage in mapping.
- Scales used in mapping.
- Surveying application in mapping.
- Leveling process.
- Angular measurements using theodolite.
- Theodolite application through Tacheometry.
- Surveying using total station.

3- Intended learning outcomes of course (ILOs):

3.1. Program ILOs related to course:

A01 Demonstrate knowledge and understanding of concepts and theories of basic and engineering sciences appropriate to architectural engineering.

A06 Demonstrate knowledge and understanding of different building construction systems and execution design methods and techniques

B02 Compare, analyze and criticize different engineering problems and case studies, evaluate design alternatives and conclude results based on analytical thinking

B08 Analyze results of numerical models and assess their limitations.

C04 Use computational facilities and techniques, measuring instruments, workshops and laboratory equipment to design experiments, collect, analyze and interpret results.

C08 Use special field devices.

D01 Communicate effectively.

D07 Work coherently as a part of a multidisciplinary team

3.2. Course Detailed ILOs:

a- Knowledge and understanding:

By the end of this course the student should be able to:

- a1. Define the basic concepts of surveying operations.
- a2. Define the basic surveying instruments.

b- Intellectual skills:

By the end of this course the student should be able to:

- b1. Derive various solutions for distance measurement obstacles.
- b2. Differentiate between mapping scales.
- b3. Use surveying for mapping purposes.
- b4. Analyze leveling data for elevation calculation.
- b5. Assess angular measurements.

c- Professional and practical skills:

By the end of this course the student should be able to:

- c1. Distinguish distance measurement tools and instruments.
- c2. Identify different types of surveying levels.
- c3. Categorize surveying level and theodolite screws and parts.
- c4. Handle and practically work with the level and theodolite.

d- General and transferable skills:

By the end of this course the student should be able to:

- d1. Work in team.
- d2. Write observations and results.

4- Course ILOs versus Program ILOs relation

See Appendix, table [1]

5- Course Contents:

Topic	Lecture	Tutorial	Field	Total
Introduction	2	2	0	4
Distance measurement operations	4	2	4	10
Surveying for mapping	2	2	2	6
Usage of scales for mapping	2	2	-	4
Leveling process	6	4	6	16
Basic Concept of Theodolite	2	2	2	6
Angular measurements using theodolite	2	2	2	6
Theodolite Application – Tacheometry	2	2	-	4
Total Station	2	2	-	4
Total	24	20	16	60

For the relation between the course contents and "Intended Learning Outcomes" (ILOs) see Appendix, table [2]

6- learning/teaching methods:

See Appendix, table [3]

7- ILOs Teaching & Assessment Method

See Appendix, table [4]

8- Weighting of assessments

- Final exam:..... 40%
- Year work:..... 50%
 - In Class Quizzes..... 15%
 - Practical Examinations..... 10%
 - Semester Work..... 25%
 - Performance & Participation..... 10%

9- List of references:

1. Students Lecture Notes
2. Handouts

10- Facilities required for teaching and learning:

- Surveying lab
- White board
- Data show for presentations

Course coordinator:

Head of Department: Prof. Dr. Samir Sadek Hosny

Date: November 2017

Course Instructor:

Appendix (1)

Table [1]: Course ILOs/ Program ILOs Matrix

		Program ILOs							
		A01	A06	B02	B08	C04	C08	D01	D07
Course ILOs	a1.	•							
	a2.		•						
	b1.			•					
	b2.			•					
	b3.				•				
	b4.				•				
	b5.				•				
	c1.					•			
	c2.					•			
	c3.						•		
	c4.						•		
	d1.								•
	d2.							•	

Table [2]: Course Content/ILO Matrix

Topic	a1	a2	b1	b2	b3	b4	b5	c1	c2	c3	c4	d1	d2
Introduction	•	•		•	•			•					
Distance measurement operations	•	•	•		•			•				•	•
Surveying for mapping	•	•	•	•	•							•	•
Usage of scales for mapping	•			•	•								
Leveling process		•				•			•	•	•	•	•
Basic Concept of Theodolite		•								•	•	•	•
Angular measurements using theodolite		•			•		•			•	•	•	•
Theodolite Application – Tacheometry		•	•				•	•		•	•		
Total Station		•	•		•		•	•		•			

Table [3]: Learning Method/ILO Matrix

Learning Method	a1	a2	b1	b2	b3	b4	b5	c1	c2	c3	c4	d1	d2
Lecture	•	•	•	•	•	•	•	•	•	•	•		•
Tutorial	•		•	•		•	•					•	•
Practical work	•	•	•	•	•	•	•	•	•	•	•	•	•

Table [4]: Assessment Method/ILO Matrix

Assessment Method	a1	a2	b1	b2	b3	b4	b5	c1	c2	c3	c4	d1	d2
Assignment	•	•	•	•	•	•	•	•	•	•	•		•
Lab Reports		•	•	•	•	•	•	•	•	•	•	•	•
Quizzes	•	•	•	•	•	•	•	•	•	•	•	•	•
Midterm & Final Exam	•	•	•	•	•	•	•	•	•	•	•	•	•