The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus

Course Title:	Surveying	**Course Number:**	110401365
Department:	Civil Engineering	**Designation:**	Compulsory
Prerequisite(s):	(110400202) Computer Aided Engineering Drawing		
Instructor:	Dr. TALEB M. AL-ROUSAN	**Instructor's Office:**	E 3015
Instructor's e-mail:	taleb@hu.edu.jo		
Office Hours:	S, T, W (9:00 – 10:00 am)		
Time: Sec. 1 **Time Sec. 2**	M,, W (9:30 - 10:30 am) M, W ((11:00 - 12:00 pm)	**Class Room:**	E 2002 E 2006
Course description:	Principles of surveying; Tape measurements (procedures, errors, and adjustments); Leveling and its application in contouring, profiles and cross-sections; Areas, volumes, and earthwork; Measurement of angles and directions; traverse surveys, topographic surveys; Electronic distance measurements (EDM); Introduction to GPS and applications. Horizontal and vertical alignment; Setting out horizontal and vertical curves. **LAB:** Tests on distance measurements, levels and theodolites, directions and angular measurements, topographic surveys, areas and volumes; traverse surveys; Setting out horizontal and vertical curves, Training on Total Station.		
Textbook(s):	Barry Kavanagh and Tom Mastin, 2014, Surveying Principles and Applications, Seventh Edition, Pearson.		
Other required material:	• Any elementary surveying book can be a good reference. • Surveying Laboratory Manual		

Program Learning Outcomes (PLOs)

On successful completion of this program graduates will be able to:

#	Outcome Description	Contribution
	General Engineering Student Outcomes	
a	an ability to apply knowledge of mathematics, science, and engineering.	H
b	an ability to design and conduct experiments, as well as to analyze and interpret data	
c	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
d	an ability to function on multidisciplinary teams	H
e	an ability to identify, formulate, and solve engineering problems	
f	an understanding of professional and ethical responsibility	
g	an ability to communicate effectively	
h	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
i	a recognition of the need for, and an ability to engage in life-long learning	
j	a knowledge of contemporary issues	
k	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	L

H=High, **M**= Medium, **L**=Low

Course Learning Outcomes (CLOs):

Upon completion of this course, the student will be able to:

1- Summarize surveying measurements and observations [a.[
2- Find errors of closure and accuracy ratios for survey measurements [a.[
3- Discover the procedures for differential leveling, angular measurements, traverse survey, and the related apparatus [a, d, k]
4- Demonstrate the use of surveying instruments [a, d]
5- Find areas and volumes of Earth works (route survey applications

example) [a, k].

Major Topics covered:

Topics	No. of Weeks	Contact hours*
Basics of Surveying	2	4 + Lab (3 hrs)
Tape Measurements,	2	4+ Lab (3 hrs)
Leveling and Leveling Applications,	2	4+ Lab (3 hrs)
Angles and Directions .	2	4+ Lab (3 hrs)
Transits and Theodolites,	1	2+ Lab (3 hrs)
Traverse Surveys.	2	4+ Lab (3 hrs)
Topographic Surveys,	1	2+ Lab (3 hrs)
Survey Drafting and Computations,	2	4+ Lab (3 hrs)
Global Positioning System and its Application.	1	2+ Lab (3 hrs)
Total	**15**	**30 + 45 lab**

*Contact hours include lectures, quizzes and exams

Class/laboratory schedule:

2 class sessions each week; 50 minutes each.
1 Lab sessions each week, 3 hrs each.

Grading Plan:

Midterm Exam	(30 Points)	Wed. 28/3/2018 (11:00 – 12 :30 pm)
Lab	(30 points)	
Final Exam	(40 Points)	Will be announced by the registrar
Please note that the grading system that will be used for this class will be as follows:		A+ (90-100), A (86 -89), A- (82-85), B+ (78-81), B (74-77), B- (70-73), C+ (66-69), C (62-65), C- (58-61), D+ (54-57), D (50-53).

General Notes:

- The maximum allowed number of absentees from the course is five classes. Exceeding these limits will lead to prevention from attending the final exam.
- NO MAKE-UP EXAMS.
- Beware of Plagiarism: copying and handing in for credit someone else's work. Any plagiarism case will result in an automatic 'F' for the course

Prepared by: Dr. *Taleb M. Al-Rousan* **Date: 28th** Jan. 2018