



جامعة المجمعة  
Majmaah University

رؤية  
VISION  
2030  
المملكة العربية السعودية  
KINGDOM OF SAUDI ARABIA

# COURSE SPECIFICATIONS (CS)

**Ramadan 1438 H , June 2017**

Institution:	Majmaah University
Academic Department :	Civil and Environmental Engineering.
Programme:	Civil Engineering.
Course title and code:	Surveying I – CE 370
Specification Approved Date :	29/ 01/1439 H

## Course Specifications

<b>Institution:</b> Majmaah University	<b>Date:</b> 17/10/2017
<b>College/Department :</b> Engineering - Civil and Environmental Engineering	

### A. Course Identification and General Information

1. Course title and code:	Surveying I – CE 370																				
2. Credit hours:	(3) [2-1-2]																				
3. Program(s) in which the course is offered. (If general elective available in many programs indicate this rather than list programs)	Civil Engineering																				
4. Name of faculty member responsible for the course	Dr Sameh S Ahmed																				
5. Level/year at which this course is offered:	5/2																				
6. Pre-requisites for this course (if any):	Math 107																				
7. Co-requisites for this course (if any):																					
8. Location if not on main campus:	--																				
9. Mode of Instruction (mark all that apply):	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;">a. traditional classroom</td> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 35%;">What percentage?</td> <td style="width: 20%; text-align: center;">70%</td> </tr> <tr> <td>b. blended (traditional and online)</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>What percentage?</td> <td style="text-align: center;">20%</td> </tr> <tr> <td>c. e-learning</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>What percentage?</td> <td style="text-align: center;"><input type="text"/></td> </tr> <tr> <td>d. correspondence</td> <td style="text-align: center;"><input type="checkbox"/></td> <td>What percentage?</td> <td style="text-align: center;"><input type="text"/></td> </tr> <tr> <td>f. other</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>What percentage?</td> <td style="text-align: center;">10%</td> </tr> </table>	a. traditional classroom	<input checked="" type="checkbox"/>	What percentage?	70%	b. blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	20%	c. e-learning	<input type="checkbox"/>	What percentage?	<input type="text"/>	d. correspondence	<input type="checkbox"/>	What percentage?	<input type="text"/>	f. other	<input checked="" type="checkbox"/>	What percentage?	10%
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<b>Comments:</b>	The course involves class room teaching with exclusive exercise and laboratory parts.																				

## B Objectives

1. What is the main purpose for this course?

1. Provide the student with the principles of surveying and training on surveying instruments.
2. Acquire the student skills in technical knowledge about different surveying's.
3. To study different methods to compute distances, areas and volumes from maps or field measurements and conduct territory division.
4. Ability to computing the co-ordinates of the positions & setting the positions on map.
5. Ability to produce cadastral maps using field measurements and AUTOCAD
6. Make the student able to use the levelling instruments and, skills, to carry out several surveying applications in the field: Profiles, road constriction and earthwork calculations.

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

Using the advantage of IT (D2L) , the reference material is posted on the instructor's website so that the students can follow easily.

## C. Course Description (Note: General description in the form used in Bulletin or handbook)

Course Description: Definitions and concepts in land surveying, divisions and importance of surveying, Types of measurements, Units of measurements, Linear measurements, Angular measurements, Directions, Compass surveying, Leveling and contouring, International and local arrangement of maps, Reading of different maps and standard specifications, Traverses, Planimeter and its applications, Plate table surveying, Leveling, Profiles, Earthwork quantities.

### 1. Topics to be Covered

List of Topics	No. of Weeks	Contact hours
<b>Basic Definitions:</b> What is Surveying? - Plane Surveying - Topographic Surveying - Geodesy - Photogrammetric - GIS, Remote Sensing - GPS.	1	5
<b>Units of Measurement:</b> Metric equivalents - Tables - Field notes - Methods of keeping notes - Errors and mistakes - Accuracy and Precision.	1	5
<b>Measurement of Distances:</b> Horizontal distance - Chains - Taps and its equipment - slope measurement by vertical angles.	1	5
<b>Measurement of Angles:</b> Horizontal angles - Vertical angles - Angles by compass.	1	5
<b>Traverse Surveys and Computations:</b> Traverse - Open traverse - Closed Traverse - Traverse computations - Traverse closure - Methods of plotting traverses - Cadastral surveying - Practical exercises - Planimeter and its applications.	2	10

<b>Midterm - 1</b>	0.5	2
<b>Levelling:</b> General - Longitudinal levelling - Cross sections - Trigonometric levelling - Direct differential levelling -the Dumpy level - Sources of error in levelling. Height of Instrument Method - Rise and Fall Method - Profiles and areas measurement.	2	10
<b>International map Numbering</b>	1	5
<b>Field operations with transit</b>	1	5
<b>Areas and Volumes:</b> areas of Regular and Irregular areas- Trapezoidal method - Simpson's one third rule, Volume calculations.	2	10
<b>Midterm- 2</b>	0.5	2
<b>Earthwork quantities:</b> Remarks - Cross Sections - Distance between Cross sections - Calculation of areas - Volume by average end area - Earthwork quantities.	1	5
<b>Contour maps</b>	1	5
<b>Total</b>	15	74

## 2. Course components (total contact hours and credits per semester):

		Lecture	Tutorial	Laboratory/ Studio	Practical	Other:	Total
<b>Contact Hours</b>	Planned	<b>30</b>	<b>15</b>	<b>30</b>		<b>1</b>	<b>75</b>
	Actual	<b>28</b>	<b>14</b>	<b>30</b>		<b>2</b>	<b>74</b>
<b>Credit</b>	Planned	<b>15</b>	<b>0</b>	<b>15</b>			
	Actual	<b>14</b>	<b>0</b>	<b>15</b>			

3. Additional private study/learning hours expected for students per week.

3-4hr

Three to four hours per week on an average for self-study and problem solving.

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy

**On the table below are the five NQF Learning Domains, numbered in the left column.**

**First**, insert the suitable and measurable course learning outcomes required in the appropriate learning domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and align with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment methods that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessment method, and teaching strategy ought to reasonably fit and flow together as an

integrated learning and teaching process. (Courses are not required to include learning outcomes from each domain.)

Code #	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	The students shall be able to understand different types of surveying.	<ul style="list-style-type: none"> <li>- Course delivery by citing real life examples and problems.</li> <li>- Emphasis on understanding concepts and illustrating applications to problems.</li> <li>- Conduct field measurements and creates maps for an urban area.</li> <li>- Revise some principles and rule in Algebra and integration.</li> </ul> <p>Placing before the class mind-provoking and thinking questions</p>	<ul style="list-style-type: none"> <li>• Regularly asking questions on different topics and concepts.</li> <li>• Midterm and End-semester examinations that will force the student to think and apply the knowledge.</li> <li>• Lab exam at the end of the course. Reports and discussions.</li> </ul>
1.2	The students shall be able measure by instruments, and use mathematics formulae to determine distances, areas, and volumes.		
1.3	Enhance student's ability to convert between different Units Systems for distances, areas, volume and angles. In addition to understand map scales.		
1.4	Student being able to draw cadastral and contour maps. Also, be able to conduct correct levelling measurements.		
1.5	The students shall be able to carry out Earthwork calculations.		
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	The students shall be able to understand and locate International Map Numbering for any city.	<ul style="list-style-type: none"> <li>- Solving surveying problems through assignments on each topic.</li> <li>- Explaining principles and concepts through real life problems</li> <li>- Asking the students to suggest a solution before giving them the correct answer.</li> <li>- Asking the students to explain the steps adopted</li> </ul>	<ul style="list-style-type: none"> <li>• Asking the student to solve the problems on white board guiding him when required.</li> <li>• Quizzes and Exams.</li> <li>• Asking students to participate in oral discussion during the class.</li> <li>• Setting assignment problems or mini project which will apply</li> </ul>
2.2	The students shall be able to think through problems solving, reasoning for each problem solved.		
2.3	Using the step by step approach in solving the problems.		
2.4	The importance of problem definition and solutions using alternatives.		
2.5	The students shall be able to differentiate between different units and have engineering scenes in estimating some surveying problems.		



		<p>in the problem and ensures that they understand the problem.</p> <ul style="list-style-type: none"> <li>- Asking searching questions on topic fundamentals.</li> </ul> <p>Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.</p>	<p>principles and concepts.</p> <ul style="list-style-type: none"> <li>• Questions in Quiz, Midterm and End semester tests which will force the student to think and apply concepts and principles learnt.</li> </ul>
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
<b>3.1</b>	The students shall be able to demonstrate their skills in the subject and be able to assess themselves.	<ul style="list-style-type: none"> <li>- Solve the problems by asking sequential questions.</li> </ul> <p>Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.</p>	<ul style="list-style-type: none"> <li>- Group work in laboratory work and team activity.</li> <li>- Bonus marks to those who are improving and participating effectively in the class.</li> </ul>
<b>3.2</b>	Help the student to solve the problem by asking questions during the office hour.		
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
<b>4.1</b>	The students shall be able to work in a team for data gathering using surveying instruments.	<ul style="list-style-type: none"> <li>- Asking students to solve problems in the class by guiding them.</li> <li>- Asking the students to express his opinion on a particular topic.</li> <li>- Divided the students into small groups during the lab sessions and re-arranging the groups.</li> </ul>	<ul style="list-style-type: none"> <li>- Discussion, Questioning during topics.</li> <li>- Highlighting the concepts and principles through mini projects.</li> <li>- Asking the students to solve the numerical part and check that the answers are tallying with notes.</li> </ul> <p>Asking the students to participate in evaluating their mates.</p>
<b>4.2</b>	The students shall be able to demonstrate and present their communication skills in the subject.		
<b>4.3</b>	Students have to be familiar with using the modern information technology such as internet, and smart board.		
<b>5.0</b>	<b>Psychomotor</b>		

5.1	NA		
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5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task (i.e., essay, test, quizzes, group project, examination, speech, oral presentation, etc.)	Week Due	Proportion of Total Assessment
1	First midterm exam	7	15
2	Second midterm exam	13	15
3	Quizzes		10
4	Report, and homework assignments		10
5	Lab. Exam	15	10
6	Final Exam	16	40
7	Total		100

### D. Student Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)  
 Every day one hour is marked as Office Hour in the Time Table of teaching staff.  
 During this hour the students can consult the teacher individually or in a group for their difficulties in the subject. In all, teaching staff is available for more than 7 hours per week for academic advices beyond lectures and tutorials.

### E Learning Resources

- List Required Textbooks
  - Barry, F. Kavanagh, "Surveying with Construction Application" (latest edition).
- List Essential References Materials (Journals, Reports, etc.)  
 Barry, F.K. and Gelnnbind, S.J., "Surveying: Principles and Applications", 5th edition, Prentice - Hall.
- List Electronic Materials, Web Sites, Facebook, Twitter, etc.
  - Selected depends on the topic.
- Other learning material such as computer-based programs/CD, professional standards or regulations and software.
  - Surfer Software, Excel spread sheets for several calculations, Level instruments, and Electronic instruments for measuring distances.

## F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access, etc.)

1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)

Lecture room available - (25 students/class) to avoid student movement. It is necessary to keep lectures for one course / level in the same classroom.

Lab spaces (12 students/class) is really not wide enough especially with too many equipment and number of students in one session..

2. Technology resources (AV, data show, Smart Board, software, etc.)

Available for students in the computer labs. Better to add more in other areas so the students can use them during the break time. Smart boards are available in the class rooms.

3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

Surveying instruments are available and only in 2014 became sufficient for the average of 10 students per session. If the number of students increases in the future, we need more instruments such as palmimeters and compasses.

## G Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching

Importance of feedback should be first explained. Only then the feedback should be taken. Have a question as to how the teaching can be improved - speed, more problems etc.

2. Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Ask the students if the speed of teaching and the approach is helping them in learning the subject.

Students are free to report any difficulties to the Head of the department.

3. Processes for Improvement of Teaching

- Review of strategy at the mid-semester and after assessment of Mid Term - 1.

Group discussion and using different ways in teaching (seminars, Power point presentations, reading, conducting more field works, etc.)

4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution)

- Independent checking of End-Semester assessment (another faculty member)

Checking of course files by the Quality Centre Nominee and give suggestions for improvement in writing.



5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Mid Semester review of Course File.
- End Semester review of Course File.
- Student feedback at end of the semester.
- Feedback of the assessment at the beginning of the next semester.
- Departmental meeting at the beginning of the next semester on improvements suggested.

**Name of Course Instructor:** Dr. Sameh S Ahmed

**Signature:** *Sameh*

**Date Specification Completed:** 17/10/1017

**Program Coordinator:** Dr. Abdullah Alshehri

**Signature:** *Alshehri*

**Date Received:** 19/10/2017