



Course Specifications

Muharram 1437 H

Institution:	Majmaah University
Academic Department :	Civil and Environmental Engineering
Programme :	Civil Engineering
Course :	Photogrammetry
Course Coordinator :	Dr. SaMeH S. Ahmed
Programme Coordinator :	Dr. Abdullah AlSheri
Course Specification Approved Date :	10/ 2 / 2017



A. Course Identification and General Information

1 - Course title :	Photogrammetry	Course Code:	CE 474
2. Credit hours :	(3) [3-1-0]		
3 - Program(s) in which the course is offered:	Civil Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	1		
6 - Level/year at which this course is offered :	9/4		
7 - Pre-requisites for this course (if any) :	<ul style="list-style-type: none"> • CE 372 		
8 - Co-requisites for this course (if any) :	<ul style="list-style-type: none"> • None 		
9 - Location if not on main campus :	(.....)		
10 - Mode of Instruction (mark all that apply)			
A - Traditional classroom	<input checked="" type="checkbox"/>	What percentage?	70 %
B - Blended (traditional and online)	<input checked="" type="checkbox"/>	What percentage?	20 %
D - e-learning	<input type="checkbox"/>	What percentage? %
E - Correspondence	<input type="checkbox"/>	What percentage? %
F - Other	<input checked="" type="checkbox"/>	What percentage?	10 %
Comments :	<p>The course involves class room teaching with exclusive exercise and laboratory parts. The teaching involves explanations & discussions subsequently with preparation of reports and additional work as assignments.</p>		

B Objectives

1- What is the main purpose for this course?
<ul style="list-style-type: none"> • Recognize and tell main concepts in photogrammetry including types of aerial photographs and cameras. • Calculate, design and measure distances and areas from aerial photographs. • Estimate and calculate the height of objects from aerial photographs. • Prepare the stereoscopes vision for a pair of photographs and conduct necessary measurements. • Explain Parallax theory and techniques of plotter orientation. • Ability to extraction of engineering information from single and two aerial photo and analyse the data. • Plan a photogrammetric project and able to calculate number of required photos and films for the task.





1- Demonstrate their teamwork and leadership skills through functioning in groups during executing a mini-project.

2- Briefly describe any plans for developing and improving the course that are being implemented:

The course is activated for the second time to the students in Surveying and Transportation Track. So this is this is the first modification of the Course Specification.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
History of photogrammetry	1	4
Aerial cameras and Camera calibration	2	8
Geometry of the aerial photograph: Principles points - Ground points - Control points - Central Projection - Interior and Exterior Orientation - Image Capture Practicalities	2	8
Stereoscopy and stereoscopes	1	4
Parallax theory and techniques of plotter orientation	1	4
Midterm 1	1	4
Extraction of engineering information from single aerial photo	1	4
Extraction of engineering information from two aerial photos	2	8
Least squares, preparation and measuring of coordinates from aerial photos	1	4
Planning a photogrammetric project	1	4
Midterm-II	-	-
Project #2, Cont.	1	
Applications using computer software's	1	8
Total	15	60

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	15	0			60
Credit	3	0	0			3





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

3-4 hrs

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

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	The students will be able to know the history of developing the subject of photogrammetric surveying.	<ul style="list-style-type: none"> - Course delivery by citing real life examples and problems. - Emphasis on understanding concepts and illustrating applications to problems. - Placing before the class mind-provoking and thinking questions. 	<ul style="list-style-type: none"> • Regularly asking questions on different topics and concepts. • Midterm and End-semester examinations that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students will be able to write about different cameras used in photogrammetric surveying		
1.3	The students will be able to tell types of aerial photos		
1.4	The students will be able to recognize the use of photogrammetric surveying.		
1.5	The students will be able to describe digital mapping process.		
2.0	Cognitive Skills		
2.1	The students will be able to calculate, design and measure distances and areas from aerial photographs	<ul style="list-style-type: none"> - Solving problems through assignments on each topic. - Assignment problems, Exercise / tutorial problems for applications that will force the students to think and apply the knowledge gained. - Asking the students to suggest a solution before giving them the correct answer. - Asking the 	<ul style="list-style-type: none"> • Asking the student to solve the problems on white board guiding him when required. • Quizzes and Exams. • Asking students to participate in oral discussion during the class. • Setting assignment problems or mini project which will apply principles and concepts. • Questions in Quiz, Midterm and End semester tests which will force the
2.2	The students will be able to estimate and calculate the height of objects from aerial photographs		
2.3	The students will be able to prepare the stereoscopes vision for a pair of photographs and conduct necessary measurements		
2.4	The students will be able to Explain Parallax theory and techniques of plotter orientation		
2.5	The students will be able to extraction of engineering information from single and two aerial photo and analyse the data		
2.6	The students will be able to plan a photogrammetric project and to calculate number of required photos and films for the task		



	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
		students to explain the steps adopted in the problem and ensures that they understand the problem.	student to think and apply concepts and principles learnt.
3.0 Interpersonal Skills & Responsibility			
3.1	The students will be able to demonstrate their skills in the subject and be able to assess themselves.	<ul style="list-style-type: none"> - Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation. 	<ul style="list-style-type: none"> • Group work in report work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
4.0 Communication, Information Technology, Numerical			
4.1	N/A	-	•
5.0 Psychomotor			
5.1	N/A.		.

5. Schedule of Assessment Tasks for Students during the Semester:

	Assessment task	Week Due	Proportion of Total Assessment
1	First midterm exam	8	20
2	Second midterm exam	14	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	15	40
	Total		100





D. Student Academic Counseling and Support

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.

E. Learning Resources

1. List Required Textbooks :

- Paul R. Wolf, "Elements of Photogrammetry", Mc Graw Hill, (Latest edition).

2. List Essential References Materials :

- Burr, F. K. and Glemen Bird, S. J., "Surveying, Principles and Applications", Prentice Hall, 2000.

3. List Recommended Textbooks and Reference Material :

- C. Burnside, "Mapping from Aerial Photographs", Tranada Publishers. (Latest edition).

4. List Electronic Materials :

Selected Papers and demonstrations from trustable web sites.

5. Other learning material :

Available ARC/GIS software.

F. Facilities Required

1. Accommodation

- Lecture room available - (20 students/class - this semester we have 8 students) to avoid student movement. It is necessary to keep lectures for one course / level in the same classroom.
- Some stereoscopic pocket instruments and aerial photographs

2. Computing resources

Available for students in the GIS Lab. Better to provide a study area so the students can use them during the break time. Smart boards are available in the class rooms.

3. Other resources

Some instruments for aerial photogrammetric surveying are required.

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 Program/Department Instructor :

- Ask the students if the speed of teaching and the approach is helping the students 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

- 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 files.
- End Semester review of Course files.
- 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.

Course Specification Approved
Department Official Meeting No (11) Date 13 / 2 / 2017

Course's Coordinator

Name : Sameh S Ahmed
Signature : SaMeH.
Date : 12/2/ 2017

Department Head

Name : Dr. Abdullah Alshehri
Signature: Alshehri
Date : 13/ 2/ 2017

