جامعة المجمعة
Majmaah University

كلية الهندسة
College of Engineering

Civil Engineering Program
Course Specifications

المملكة العربية السعودية
وزارة التعليم
جامعة المجمعة
كلية الهندسة

Kingdom of Saudi Arabia
Ministry of Education
Majmaah University
College of Engineering

جامعة المجمعة
Majmaah University

كلية الهندسة
College of Engineering

Civil Engineering Curriculum

Structural Engineering

First Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 105	Differential Calculus	3	(3,1,0)	
PHY 103	General Physics	4	(3,1,2)	
GE 101	Fundamentals of Engineering Technology	2	(1,0,2)	
GE 102	Fundamentals of Engineering Drawing	3	(1,0,4)	
GE 103	Engineering Mechanics (Statics)	3	(3,1,0)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MATH 106	Integral Calculus	3	(3,1,0)	MATH 105
MATH 107	Algebra and Analytical Geometry	3	(3,1,0)	
GE 108	Engineering Mechanics (Dynamics)	3	(3,1,0)	GE 103
GE 105	Engineering Chemistry	3	(3,1,0)	
CE 101	Engineering Geology	2	(2,1,0)	
CE 102	Civil Engineering Drawing	3	(1,0,4)	GE 102
		17		

Second Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 204	Differential Equations	3	(3,1,0)	MATH 106 MATH 107
CE 210	Soil Mechanics and Foundation Engineering 1	3	(2,1,2)	CE 101
CE 214	Structural Analysis 1	3	(3,1,0)	GE 103
CE 240	Hydraulics 1	3	(2,1,2)	GE 108
CE 370	Surveying 1	3	(2,1,2)	MATH 107
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
STAT 201	Statistics and Probability	3	(3,1,0)	
CEN 209	Computer Programming for Civil Engineering	3	(2,0,2)	
CE 217	Reinforced Concrete Design 1	3	(3,2,0)	CE 214
CE 212	Properties and Strength of Materials 1	3	(2,1,2)	
CE 215	Structural Analysis 2	3	(3,1,0)	CE 214
CE 241	Hydraulics 2	3	(2,1,2)	CE 240
		18		

Third Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 306	Engineering Report Writing	2	(2,0,0)	STAT 201
CE 311	Soil Mechanics and Foundation Engineering 2	3	(2,1,2)	CE 210
CE 360	Environmental Engineering 1	2	(2,0,0)	GE 105
CE 363	Water Supply and Sewage Engineering	2	(2,1,0)	CE 241
CE 371	Surveying 2	3	(2,1,2)	CE 370
CE 380	Highway and Traffic Engineering	3	(3,1,0)	CE 370
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 254	Numerical Methods	3	(3,1,0)	MATH 204
CE 313	Properties and Strength of Materials 2	3	(2,1,2)	CE 212
CE 316	Structural Analysis 3	3	(3,1,0)	CE 215
CE 318	Reinforced Concrete Design 2	3	(3,2,0)	CE 217
CE 320	Steel Structures Design 1	3	(3,2,0)	CE 214
		17		

CE 399	Engineering Practice	0	90 Credit Hours must be completed

Fourth Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 407	Engineering Economy	2	(2,1,0)	
CE 425	Computer Applications in Structural Engineering	2	(1,0,2)	CEN 209
CE 419	Reinforced Concrete Design 3	3	(3,2,0)	CE 318
CE 421	Steel Structures Design 2	3	(3,2,0)	CE 320
CE 42x	Elective Course (1)	3	(3,2,0)	
CE 498	Senior Design (1)	2	(1,0,2)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 408	Engineering Project Management	2	(2,1,0)	GE 407
CE 422	Methods and Equipment of Construction	2	(2,1,0)	
CE 423	Contracts and Specifications	2	(2,1,0)	
CE 424	Building Construction	3	(3,1,0)	CE 419
CE 43x	Elective Course (2)	3	(3,1,0)	
CE 499	Senior Design (2)	2	(1,0,2)	CE 498
		16		

Surveying Engineering

First Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 105	Differential Calculus	3	(3,1,0)	
PHY 103	General Physics	4	(3,1,2)	
GE 101	Fundamentals of Engineering Technology	2	(1,0,2)	
GE 102	Fundamentals of Engineering Drawing	3	(1,0,4)	
GE 103	Engineering Mechanics (Statics)	3	(3,1,0)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MATH 106	Integral Calculus	3	(3,1,0)	MATH 105
MATH 107	Algebra and Analytical Geometry	3	(3,1,0)	
GE 108	Engineering Mechanics (Dynamics)	3	(3,1,0)	GE 103
GE 105	Engineering Chemistry	3	(3,1,0)	
CE 101	Engineering Geology	2	(2,1,0)	
CE 102	Civil Engineering Drawing	3	(1,0,4)	GE 102
		17		

Second Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 204	Differential Equations	3	(3,1,0)	MATH 106 MATH 107
CE 210	Soil Mechanics and Foundation Engineering 1	3	(2,1,2)	CE 101
CE 214	Structural Analysis 1	3	(3,1,0)	GE 103
CE 240	Hydraulics 1	3	(2,1,2)	GE 108
CE 370	Surveying 1	3	(2,1,2)	MATH 107
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
STAT 201	Statistics and Probability	3	(3,1,0)	
CEN 209	Computer Programming for Civil Engineering	3	(2,0,2)	
CE 217	Reinforced Concrete Design 1	3	(3,2,0)	CE 214
CE 212	Properties and Strength of Materials 1	3	(2,1,2)	
CE 215	Structural Analysis 2	3	(3,1,0)	CE 214
CE 241	Hydraulics 2	3	(2,1,2)	CE 240
		18		

Thirst Year

Fall Semester

Code		Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 306	Engineering Report Writing	2	(2,0,0)	STAT 201
CE 311	Soil Mechanics and Foundation Engineering 2	3	(2,1,2)	CE 210
CE 360	Environmental Engineering 1	2	(2,0,0)	GE 105
CE 363	Water Supply and Sewage Engineering	2	(2,1,0)	CE 241
CE 371	Surveying 2	3	(2,1,2)	CE 370
CE 380	Highway and Traffic Engineering	3	(3,1,0)	CE 370
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 254	Numerical Methods	3	(3,1,0)	MATH 204
CE 372	Geodetic Surveying	3	(2,1,2)	CE 371
CE 381	Highway Materials and Construction	3	(2,1,2)	CE 380
CE 318	Reinforced Concrete Design 2	3	(3,2,0)	CE 217
CE 320	Steel Structures Design 1	3	(3,2,0)	CE 214
		17		

CE 399	Engineering Practice	0	90 Credit Hours must be completed

Fourth Year

Fall Semester

Code		Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 407	Engineering Economy	2	(2,1,0)	
CE 473	Computer Applications in Surveying Engineering	2	(1,0,2)	CEN 209
CE 474	Photogrammetric	3	(3,1,0)	CE 372
CE 482	Railway Engineering	3	(3,1,0)	CE 371
CE 47x	Elective Course (5)	3	(3,1,0)	
CE 498	Senior Design (1)	2	(1,0,2)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 408	Engineering Project Management	2	(2,1,0)	GE 407
CE 422	Methods and Equipment of Construction	2	(2,1,0)	
CE 423	Contracts and Specifications	2	(2,1,0)	
CE 475	Remote Sensing	3	(3,1,0)	CE 474
CE 48x	Elective Course (6)	3	(3,1,0)	
CE 499	Senior Design (2)	2	(1,0,2)	CE 498
		16		

Water and Environmental Engineering

First Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 105	Differential Calculus	3	(3,1,0)	
PHY 103	General Physics	4	(3,1,2)	
GE 101	Fundamentals of Engineering	2	(1,0,2)	
GE 102	Fundamentals of Engineering	3	(1,0,4)	
GE 103	Engineering Mechanics (Statics)	3	(3,1,0)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MATH 106	Integral Calculus	3	(3,1,0)	MATH 105
MATH 107	Algebra and Analytical Geometry	3	(3,1,0)	
GE 108	Engineering Mechanics	3	(3,1,0)	GE 103
GE 105	Engineering Chemistry	3	(3,1,0)	
CE 101	Engineering Geology	2	(2,1,0)	
CE 102	Civil Engineering Drawing	3	(1,0,4)	GE 102
		17		

Second Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 204	Differential Equations	3	(3,1,0)	MATH 106 MATH 107
CE 210	Soil Mechanics and Foundation Engineering 1	3	(2,1,2)	CE 101
CE 214	Structural Analysis 1	3	(3,1,0)	GE 103
CE 240	Hydraulics 1	3	(2,1,2)	GE 108
CE 370	Surveying 1	3	(2,1,2)	MATH 107
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
STAT 201	Statistics and Probability	3	(3,1,0)	
CEN 209	Computer Programming for Civil Engineering	3	(2,0,2)	
CE 217	Reinforced Concrete Design 1	3	(3,2,0)	CE 214
CE 212	Properties and Strength of Materials 1	3	(2,1,2)	
CE 215	Structural Analysis 2	3	(3,1,0)	CE 214
CE 241	Hydraulics 2	3	(2,1,2)	CE 240
		18		

Third Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 306	Engineering Report Writing	2	(2,0,0)	STAT 201
CE 311	Soil Mechanics and Foundation Engineering 2	3	(2,1,2)	CE 210
CE 360	Environmental Engineering 1	2	(2,0,0)	GE 105
CE 363	Water Supply and Sewage	2	(2,1,0)	CE 241
CE 371	Surveying 2	3	(2,1,2)	CE 370
CE 380	Highway and Traffic Engineering	3	(3,1,0)	CE 370
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
MATH 254	Numerical Methods	3	(3,1,0)	MATH 204
CE 342	Hydraulic Structures (1)	3	(3,1,0)	CE 241
CE 343	Irrigation and Drainage	3	(3,1,0)	CE 241
CE 318	Reinforced Concrete Design 2	3	(3,2,0)	CE 217
CE 320	Steel Structures Design 1	3	(3,2,0)	CE 214
		17		

CE	Engineering	0	90 Credit Hours must be completed

Fourth Year

Fall Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 407	Engineering Economy	2	(2,1,0)	
CE 444	Computer Applications in Water Engineering	2	(1,0,2)	CEN 209
CE 445	Hydrology	3	(3,1,0)	CE 241
CE 461	Environmental Engineering 2	3	(2,0,2)	CE 360
CE 4xx	Elective Course (3)	3	(3,1,0)	
CE 498	Senior Design (1)	2	(1,0,2)	
		17		

Spring Semester

Code	Course	Credits	Contact hours	Prerequisite
MURE	University Requirement	2	(2,0,0)	
GE 408	Engineering Project Management	2	(2,1,0)	GE 407
CE 422	Methods and Equipment of Construction	2	(2,1,0)	
CE 423	Contracts and Specifications	2	(2,1,0)	
CE 463	Water and Wastewater	3	(3,1,0)	CE 363
CE 46x	Elective Course (4)	3	(3,1,0)	
CE 499	Senior Design (2)	2	(1,0,2)	CE 498
		16		

CE 101

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Engineering Geology CE 101
2. Credit hours: 2 (1,0,2)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Spring semester, freshman year
6. Pre-requisites for this course (if any): None
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - Recognize the main types of rocks in nature with their properties.
   - Identify physical and chemical properties of rock minerals.
   - Provide students with different applications of Engineering Geology in the field of Civil Engineering.
   - Understand the main geologic structures: faults, folds and joints.
   - Learn desired natural materials for the construction purposes according to the geotechnical properties of rocks.

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)
   - Practical applications to problems.
   - Additional samples of minerals.
   - Additional samples of sedimentary, igneous and metamorphic rocks.
   - Posters for earthquakes and volcanoes.
   - Posters for faults, folds and joints.

C. Course Description

List of Topics	No. of Weeks	Contact Hours
Introduction to Course	1	3
Branches of Earth Sciences	2	6
Properties of Rock Minerals	1	3
Igneous Rocks Classification	2	6
Exam 1	0.5	2
Sedimentary Rocks Classification	2	6
Metamorphic Rocks Classification	1	3
Faults, Folds and Joints	2	6
Structural Geology with Civil Engineering	1	3
Exam 2	0.5	2
Earthquakes and Volcanoes	1	3
Geologic Maps	1	3
Total	15	46

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	16	0	30	0	0	46
Credit	1	0	1	0	0	2

3. Additional private study/learning hours expected for students per week. 2-3

2-3 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 student will be able to identify physical and chemical properties of rock minerals.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The student will be able to recognize the main types of rocks in nature with their properties.		
1.3	The student will be able to understand different applications of Engineering Geology in the field of Civil Engineering.		
1.4	The student will be able to understand the main geologic structures: faults, folds and joints.		
1.5	The student will be able to select desired natural materials for the construction purposes according to the geotechnical properties of rocks.		
2.0	Cognitive Skills		
2.1	Be able to identify mineral properties.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem	• 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,
2.2	Learn different procedures for conducting all types of rocks.		
2.3	Applications of Engineering Geology in the field of Civil Engineering.		
2.4	Analysis and interpretation of geologic structures.		
2.5	Regarding geotechnical properties of rocks, to learn their uses in construction.		

		and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	Major and Final exams which will force the student to think and apply concepts and principles learnt.
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	20
2	Second major exam	12	20
3	Quizzes	-	-
4	Report, and homework assignments	3-13	10
5	Practical Work of Lab	-	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Goodman, R., "Engineering Geology", John Wiley & Sons, 1993.
2. List Essential References Materials (Journals, Reports, etc.) Bangar, K.M., "Principles of Engineering Geology", Standard Publishers Distribution, New Delhi, 1997.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Singh Parbin, “A Text Book of Engineering and General Geology”, (Latest edition).
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Structural Geology (CD).

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.) - A need for a specified geologic lab with apparatus and equipment. - Availability of mineral and rock specimen.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) No Engineering geology laboratory is available yet.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are

interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 102

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Civil Engineering Drawing CE102
2. Credit hours: 3(1,0,4)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Spring semester ,freshman year
6. Pre-requisites for this course (if any): GE 101
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	10
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - To familiarize students with various civil engineering drawings in civil engineering projects.
   - To develop the enough skills in preparing and presentation of civil engineering drawings at professional level.

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)
   - PowerPoint presentation notes
   - Practical visits to the construction places to show the actual building construction components.
   - Development of drawing using AUTOCAD
   - Developing the designing understanding of different construction components and deriving the missing dimensions by simple equations.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: Scope and general principles; conventions in civil engineering drawing.	1	5
Steel Structures Drawings	2	10
Building drawing planning and Design	1	5
Foundation types and their drawing practices	2	10
Retaining Walls and their drawing practices (Masonry & Concrete)	2	10
Culvert and Bridge types and drawing practices	1	5
Canal embankments & Road Crossings	2	10
Architectural drawings	2	10
Reinforced concrete detailing	2	10
Total	15	75

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	15	-	60	-	-	75
Credit	1	0	2	-	-	3

3. Additional private study/learning hours expected for students per week. 2-3
   2-3 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	Demonstrate the ability to present drafting manually and using AUTOCAD.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Understand and develop skills required for presenting drawing for CE projects.		
1.3	Knowledge of civil engineering drawing conventions		
1.4	Presenting the concepts, theory and applications by lectures, lab drawing and homework		
2.0	Cognitive Skills		
2.1	The student can draw any civil engineering project with the suitable scale.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The student can imagine the different projection and deduce it.		
2.3	The student can read the different civil engineering drawings.		
2.4	The student can draw any civil engineering project with the suitable scale.		
3.0	Interpersonal Skills & Responsibility		
3.1	The students would be able to utilize diversely the knowledge of manual and AUTOCAD drawing in order to deal with complex projects swiftly.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the
3.2	Drawing constraints and codes would be easily understood by the students with the use of drawing rules for different structures.		

			class.
4.0	Communication, Information Technology, Numerical		
4.1	The ability of student to join a teamwork for design projects.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the lab work, Assignment projects.		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	Lab and homework assignments (Manual Drawing)	-	20%
2	First major exam (Manual Drawing)	7	10%
3	Second exam (Manual Drawing)	13	10%
4	Lab, assignments, Quiz (AUTOCAD Drawing)	-	20%
5	Final Exam (Manual + AUTOCAD)	16	40%
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 5 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks • Drawing sheets given in lecture
2. List Essential References Materials (Journals, Reports, etc.) • Elsheikh, "Introduction to Drawing for Civil Engineering", McGraw-Hill, (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Singh & Sharma, "Civil Engineering Drawing", Standard Publishers & Distributers, 1980. • M.G. Shah, C.M. Kale, S.Y. Patki, “Building Drawing”, Tata McGraw Hill, Delhi, (Latest edition). • V.K. Jain, “Services in Building Complex”, Khanna Publishers, (Latest edition). • Chakraborty M., “Civil Engineering Drawing”, (Latest edition).
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

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.) Computer Lab.
2. Computing resources (AV, data show, Smart Board, software, etc.) AUTOCAD must be installed in the all PC of computer lab to improve the drawing skills.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) None

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 103

Course Specifications

Institution Majmaah University	Date of Report: 04/12/2014
College/Department : Civil and Environmental Engineering Department	

A. Course Identification and General Information

1. Course title and code: Statics; GE 103			
2. Credit hours 3 (3, 1, 0)			
3. Program(s) in which the course is offered: Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered Fall semester, freshman year			
6. Pre-requisites for this course (if any) None			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom		What percentage?	70%
b. Blended (traditional and online)		What percentage?	20%
c. e-learning		What percentage?	10%
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-
Comments:			

B Objectives

1. What is the main purpose for this course? To gain the ability to outline, then analysis various loads and forces on a number of types of structures members and mechanical components in engineering practice.
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) a) Course delivery by adapting real life examples. b) Use some web sites and YouTube to illustrate 3D problems. c) Background materials from new books and recent published journals are provided. d) Encourage the students for mind provoking and thinking questions.

C. Course Description

1. Topics to be Covered		
List of Topics	No of Weeks	Contact hours
Introduction to engineering mechanics.	1	3
Force systems and vectors in 2D and 3D systems.	1	3
Moments, couples in 2D, 3D dimensions.	2	6
Centroids and center of gravity.	2	6
Analysis of various engineering structures.	3	9
Moment of inertia of area and masses.	1	3
Equilibrium of force systems.	1	3
Friction.	2	6
Principle of virtual work.	2	6
Total	15	45

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

3. Additional private study/learning hours expected for students per week.	3-4

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 student will be able to study and determine of force systems, force resultant and equilibrium on various engineering structures such as beams and trusses.	Course delivery through citing practical examples and problems. Understanding the concept by practical problem application.	Induce the student to ask regular questions on various topics and concepts. Interactive problem solving with students.

	The student will be able to use the gained force and equilibrium knowledge to analyze engineering structure.		
1.2	The student will be able to study the effect of friction and the applications of Principle of Virtual Work on the resultant forces and equilibrium of engineering structures.	Referring to the recently published materials and text books for problems applications Extensive interaction with students	Exercise, tutorial and assignment to let the student apply the knowledge gained. Mid-term and End-semester exams that promote the ability of the student to think and used the gained knowledge to solve the problems.
2.0	Cognitive Skills		
2.1	The student will be able to justify the series steps taken to solve the problems.	Explain principles and concepts through practice problems. To solve problems through research approach rather than the direct way.	Oral discussion with students to be involved in problem solving.
2.2	The student will be able of Making a precise decision on choosing the right solution or alternative solutions	Cooperative problems solving with students by asking them for anticipated solutions before solving the problems.	Quizzes and homework methods. First, Second and Final exams.
3.0	Interpersonal Skills & Responsibility		
3.1	During the office hours where student are urged to asked to solve problems.	Asking sequential questions to solve problems needed.	During office hours, to solve course problems.
3.2	The student will be able of using email and website to let the student to be in contact with his instructor.	Pay attention for every student case and circumstances to encourage show more effort.	Bonus marks for effective and participative students in classroom. Very few in this course (no-lab).
4.0	Communication, Information Technology, Numerical		
4.1	The student will be able of using Trigonometry to solve engineering problems (Numerical skills).	Encourage the students to participate in class-problem solving method.	Questioning and discussion. Focus on the concepts and principles through real life time.
4.2	The student will be able to solve the problems by themselves in the classroom.	Summer training programs by MU to experience the knowledge gained on field.	Improve the students numerical and communication skills by reciting from recently published journals
5.0	Psychomotor: N/A		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	Quizzes	3-14	10%
2	Assignments	3-14	10%
3	First Exam	6-8	15%
4	Second Exam	13-14	15%
5	Final Exam	16	40%
6	Tutorial Exercise	Continuous	10%
	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)
   a) Teaching staff is available at least 6 hours per week.
   b) Students can arrange appointments by email or oral for academic advice as well as solving problems.

E. Learning Resources

1. List Required Textbooks
   - Hibbeler, R.C., "Engineering Mechanics STATICS", Prentice Hall; Latest Edition.

2. List Essential References Materials (Journals, Reports, etc.)
- Meriam, J.L and Kraige, L.G., "Engineering Mechanics STATICS", latest Edition.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
The above are fairly enough.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
-Plenty are available through Google Scientific Research.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
- Not required. The above listed materials are more than enough.

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.)
   a) The size of lecture room is adequate.
   b) No lab required in this course

2. Computing resources (AV, data show, Smart Board, software, etc.)
   N.E

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

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching
   - Completion course evaluation questionnaire,
   - Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.

2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor
   - Faculty Peer Assessment

3. Processes for Improvement of Teaching
   - Plan: The instructor will develop a strategy for teaching.
   - Do: The strategy will be implemented for one semester.
   - Study: The experiences of the students will be collected through a survey.
   - Act: Effective teaching strategies will be implemented and revised as more experiences are gained.

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)
   - Check marking of a sample of examination papers.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
   - Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.
   - A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
   - Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 210

Course Specifications

Institution: Majmaah University	Date of Report: 2/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Soil Mechanics and Foundation Engineering - 1 CE 210
2. Credit hours: 3 (2,1,2)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Fall semester, sophomore year
6. Pre-requisites for this course (if any): CE 101
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. E-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves class room teaching with exclusive exercise and laboratory parts. The teaching involves explanations & discussions subsequently with preparation of laboratory reports and additional work as assignments.

B Objectives

1. What is the main purpose for this course?
   1. To study the phenomena and formation of various types of soils.
   2. To learn various classification systems.
   3. To study the three phase system of the soil.
   4. To determine various Index Properties of the soil in the laboratory.
   5. To study the flow through soil.
   6. To study the determination of stresses within the soils.
   7. To have the concept of consolidation phenomenon and to calculate the consolidation settlement and its time required.
   8. To study the compaction of different type soils.
   9. To analyze the stability of slopes made up of different types of soils.
   10. To have the concepts of failure envelopes of soils and to calculate the shear strength of the soil at different drainage conditions.
   11. To calculate the active and passive earth pressures on retaining walls.
   12. A brief idea about the soil investigation.

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)

- The course content is going shortly for revision as per the latest research. Using the advantage of IT, the reference material is posted on the website so that the students can benefit from them.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Formation of soil	1	5
Soil Classification systems	1	5
Three phase system of soil	1	5
Flow through soils	1	5
Stresses within the soils	2	10
Exam 1	0.5	2
Consolidation	2	10
Compaction	1	5
Lateral Earth Pressures	1	5
Shear strength of soils	2	10
Exam 2	0.5	2
Stability of slopes	1	5
Soil Investigations	1	5
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	14	30	-	-	74
Credit	2	0	1	-	-	3

3. Additional private study/learning hours expected for students per week. 3-4 hours per week on an average for self-study and problem solving	3-4

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 shall be able to recognize and describe different soil types.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester examinations that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students shall be able to define and record various engineering properties of the soils.		
1.3	The students shall be able to label the grades of the soils.		
1.4	The students shall be able to tell the behavior of soils subjected to the loading.		
1.5	The students shall be able to memorize three phase system relationships and various laws.		
2.0	Cognitive Skills		
2.1	The students shall be able to compare the compaction and consolidation in soils.	- 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 students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students shall be able to interpret the lab report of the soils.		
2.3	The students shall be able to predict total consolidation settlement in the soil.		
2.4	The students shall be able to prepare Grain Size Distribution Curves for classifying the soils.		
2.5	The students shall be able to explain the strength of the soil and be able to calculate shear strength of the soils.		

3.0	Interpersonal Skills & Responsibility		
3.1	The students shall be able to demonstrate their skills in the subject and be able to assess themselves.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	The students shall be able to evaluate the stability of the slopes of the soils.		
4.0	Communication, Information Technology, Numerical		
4.1	The students shall be able to calculate different soil properties using given data.	- Asking students to solve problems in the class by guiding him. - Asking the students to speak on a particular topic.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.2	The students shall be able to demonstrate their communication skills in the subject.		
4.3	The students shall be able to assess the relevant material through IT and be able to criticize it.		
5.0	Psychomotor		
5.1	The students shall be able to demonstrate their high quality skills in the subject by applying the learning outcome to the real problems.	- A small real project is given to the students to demonstrate their skills	• Checking and discussion on the solution of the project problems.

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	15
2	Second major exam	14	15
3	Quizzes	-	15
4	Report, and homework assignments	-	15
5	Final Exam	16	40
6	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

1. List Required Textbooks Das, B, M. "Principle of Geotechnical Engineering", Thomson-Engineering, Latest edition.
2. List Essential References Materials (Journals, Reports, etc.) Boweles, J . E., "Engineering Properties of Soils and their Measurements", McGraw-Hill, Latest edition.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Berry, P.L. and Reid, D., "An Introduction to Soil Mechanics", Mc Graw-Hill, 1987 • B.C. Punmia , "Soil Mechanics and Foundation Engg" 2005.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking soil mechanics software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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 classrooms.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need raw materials (soil samples) each semester, also to add some instruments to the Soil Mechanics lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.

- A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
- Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 212

Course Specifications

Institution: Majmaah University	Date of Report: 31/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Properties and Strength of Materials 1 CE 212			
2. Credit hours: 3 (2,1,2)			
3. Program(s) in which the course is offered. Civil and Environmental Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester, sophomore year			
6. Pre-requisites for this course (if any): None			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - Introduce students to basic civil engineering materials
   - Introduction to the physical and chemical properties of materials, structure and their behavior under various loads and environments to understand prediction models and statistical variations for quality control.
   - Concepts of stress and strain developed and evaluated for the application of axial, shear, torsional, and bending loads
   - aid civil engineering student's selection of suitable materials for construction works
   - understand fundamental properties of civil engineering materials
   - Promote awareness in students of the importance of material behavior in both design and construction.
   - To present some essential destructive and non-destructive tests to evaluate material's properties.
   - Lab part: some basic laboratory tests will be conducted to determine certain properties of different construction materials.

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.
   - Placing before the class mind provoking and thinking questions.
   - Use videos and visiting industrial plant related to the manufacture of civil engineering materials
   - Perform laboratory testing to certain construction materials.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: What is materials science and engineering?	2	10
Physical properties.	2	10
First major exam.	1	2
Mechanical properties.	2	10
Analysis of data: Statistical approach.	2	10
Second major exam.	1	2
Applications for Main Civil Engineering Materials (bricks, concrete, lime, gypsum, timber, wood, metals, ceramics, glasses, etc)	2	10
Non-destructive tests.	2	10
Final exam.	1	2
Total	15	66

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	15	30	-	-	90
Credit	2	1	2	-	-	5

3.Additional private study/learning hours expected for students per week. 3-4 hours per week on an average for self-study and problem solving	2-3

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	Introduction to material science and engineering.	– Course delivery by citing real life examples and problems. – Placing before the class mind provoking and thinking questions. – Solving problems – Video tutorial – Discussion	• Major exams • Periodical short quizzes • Reports, discussions and teamwork
1.2	Classification of materials		
1.3	Mechanical properties of engineering materials		
1.4	Selection criteria		
1.5	Understand experiments to achieve a quality control of materials used in construction.		
1.6	Analyze stress strain behavior of engineering materials as well as composite construction like RCC.		
1.7	Use statistics to analyze data		
2.0	Cognitive Skills		
2.1	Solving practice exercises	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	During experiment and exercise sessions: determine, estimate, draw diagrams, design, and conduct, evaluate, comment, and writing reports.		
3.0	Interpersonal Skills & Responsibility		

3.1	Help the student to solve the problem by asking questions during the office hours.	- Lectures - Problem solving - Group Discussion - Paying personal attention to each student and caring about his situation.	• Class Participation • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		
4.0	Communication, Information Technology, Numerical		
4.1	Communicate with teacher, ask questions, solve problems, and use computers.	- Exercises - Problem solving	• Write reports and PowerPoint presentation • Exercises related to specific topics
4.2	Operate questions during the lecture, work in groups, and communicate with each other		
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	20
2	Second exam	12	20
3	Quizzes	Continuous	10
4	Report, and homework assignments	Continuous	10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 5 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks No textbook is required. Notes will be posted on the web.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Callister, Jr., W.D., "Materials Science and Engineering; An Introduction", 4th Edition, John Willey & Sons, 1997.

Somayajji, S. "Civil Engineering materials", Prentice Hall, 1995. Young, Mindess, Gray and Bentur , "The Science and Technology of Civil Engineering Materials", Prentice Hall.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

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

2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need raw materials each semester, also to add some instruments to the Testing materials lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment.
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 214

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Structural Analysis 1 CE 214
2. Credit hours: 3 (3,1,0)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Fall semester, sophomore year
6. Pre-requisites for this course (if any): GE 103
7. Co-requisites for this course (if any): None
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	100
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-

Comments:
The course involves Lectures and exercises parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - To list out the types of structures, support and loads.
   - To make familiar with idealization of structures and loads.
   - To have the concept of geometric stability and determinacy.
   - To analyze determinate trusses.
   - To analyze determinate beams and plane frames.
   - To analyze determinate arches.
   - To have concept of influence line and to draw influence line diagrams for determinate structures.

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)
   - Course delivery by citing real life examples and problems
   - Emphasis on understanding concepts and illustrating applications to problems
   - Solving problems through assignment on each topic
   - Background materials from the books are provided
   - Extensive interaction with students

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Types of structures, Supports and loads	2	8
Idealization of structures and loads	1	4
Geometric stability and determinacy	1	4
Analysis of determinate beams	2	8
Exam 1	0.5	2
Analysis of determinate plane frames	2	8
Analysis of determinate trusses	2	8
Exam 2	0.5	2
Analysis of determinate arches	2	8
Influence lines of determinate structures	1	4
Final Exam	1	4
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.
   6-8 hours per week on an average for self-study and problem solving — 6-8

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	Analyze of statically determinate structures (beams, frames, arches and trusses).	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Draw normal force, shearing force and bending moment's diagrams.		
1.3	Construct influence lines for certain functions at critical sections and determination the maximum values of these functions due to different types of moving loads in statically determinate structures.		
1.4	Calculate the forces at truss members using section and joint method.		
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		
2.5			
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		

			class.
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	15
2	Second exam	12	15
3	Quiz, Exercise questions and participation		10
4	Homework, Report, Project and assignments		10
5	Tutorials		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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Russell G. Hibbeler, "Structural Analysis", 8th edition, Prentice – Hall.
2. List Essential References Materials (Journals, Reports, etc.)
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Chajes, "Structural Analysis", 2nd edition, Prentice – Hall, 1990. • Reddy C.S., "Basic Structural Analysis", Tata McGraw Hill, (Latest edition). • Pandit & Gupta, "Matrix Methods in Structural Analysis", Tata McGraw Hill. • Junnarkar S.B., "Structural Mechanics", Vol II, Charotar Publishers, (Latest edition). • Dr. Thadani B.N. & Dr. Desai J.P., "Modern Methods in Structural Analysis", • Weinall Book Corporation, (Latest edition). • Wang C.K., "Intermediate Structural Analysis", Tata McGraw Hill, (Latest edition). • Gupta & Pandit, "Structural Analysis", Vol. I & II, Tata McGraw Hill, (Latest edition). • Negi L.S. & Jangid R.S., "Structural Analysis", Tata McGraw Hill, (Latest edition). • Yuan Yu Hsieh, "Elementary Theory of Structures", Prentice Hall, (Latest edition). • Chajes A., "Structural Analysis", Prentice Hall, (Latest edition).
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking structural analysis software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need to add some instruments to the structural analysis lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are

gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 215

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Structural Analysis 2 CE 215
2. Credit hours: 3 (3-1-0)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Spring semester, sophomore year
6. Pre-requisites for this course (if any): CE 214
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	5
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	15

Comments:
The course involves exercises, teaching this part depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course
   - To have the concept of the properties of plane areas.
   - To have the knowledge of the straining actions of various structures.
   - To study and evaluate Normal stresses, Shear stresses, combined stresses.
   - To analyze the indeterminate trusses.
   - To analyze the indeterminate beams and plane frames
   - To analyze the indeterminate arches
   - To determine deflection in the beams by moment –area method.
   - To determine deflection in the beams by integration method

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.
   - Placing before the class mind provoking and thinking questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Properties of plane area	1	4
Straining actions	1	4
Normal stresses	1	4
Shear stresses and combined stresses	2	8
Differential equation of elastic curve	1	4
Exam 1	0.5	2
Analysis of indeterminate structures; trusses, beams, plane frames and arches	2	8
Load –shear moment relationship	2	8
Exam 2	0.5	2
Differential equation of elastic curve	1	4
Deflections by integration, moment –area	2	8
Final exam	1	4
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. 2-3 hours per week on an average for self-study and problem solving	2-3

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 student will be able to define the centroid and moment of inertia for structural elements and their properties.	– Lectures, tutorials, home works	• Theoretical exams, continuous assessment
1.2	The student will be able to state the differential equation of elastic curve.		
1.3	The student will be able to describe the indeterminacy of structures.		
1.4	The student will be able to recognize and draw and the load, shear and moment diagrams and their relationships.		
2.0	Cognitive Skills		
2.1	The ability of determination of the straining actions of Various structures.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The ability of determination of the properties of plane Areas.		
2.3	The ability of analyzing different sections subjected to normal, shear and combined Stresses.		
2.4	The ability of Constructing the normal, shear and combined stress diagrams for various Sections of structures.		
2.5	Ability of Solving of the indeterminate structures.		
3.0	Interpersonal Skills & Responsibility		
3.1	Personal responsibility of solving problems	- Solve the problems by	• Bonus marks to

3.2		asking sequential questions. - Paying personal attention to each student and caring about his situation.	those who are improving and participating effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	Calculate the centroid and moment of inertia for structural elements and their properties.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	•Demonstrate the ability to transform stresses to arbitrary axis.		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Calculate deflections for indeterminate beams, and frames using approximate methods, double integration method, moment area method, and conjugate beam method		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	20
2	Second exam	12	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
N. M. Belyaev- Strength of materials- Mir

2. List Essential References Materials (Journals, Reports, etc.)
1-Russell G. Hibbeler, “Structural Analysis”, 8nd edition, Prentice – Hall.
2-Chajes, “Structural Analysis”, 2nd edition, Prentice – Hall, 1990.
3-Tartaglione, L.C., “Structural Analysis”, McGraw – Hill, 1991.

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) none
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. none

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.
2. Computing resources (AV, data show, Smart Board, software, etc.) data show, Smart Board
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 217

Course Specifications

Institution: Majmaah University	Date of Report: 14/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Reinforced Concrete Design 1 CE 217			
2. Credit hours: 3 (3,2,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered Spring semester, sophomore year			
6. Pre-requisites for this course (if any): CE 214			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10
Comments: The course involves exercises and laboratory parts (CE313), teaching these two parts depends on explaining, reports, home works and assignments.			

B Objectives

1. What is the main purpose for this course?

- To present the materials (Steel and concrete essentially) for the design of reinforced concrete members in a simple and logical approach.
- To introduce the concept of elastic and ultimate design theories.
- To familiarize with ACI codal provisions for design.
- To design RC members subject to flexure, shear and diagonal tension.
- To have the knowledge of controlling the deflection and cracks.
- To have the expertise regarding detailed drawings of the RC structures

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)

- Course delivery by citing real life examples and problems.
- Emphasis on understanding concepts and illustrating applications to problems in classroom.
- Solving problems through assignments and tutorials on each topic.
- Written notes are provided, in addition to reference and PowerPoint presentations.
- Placing before the class mind provoking and thinking questions.
- Students are strongly recommended to make use of the library and relevant websites on the net.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Reinforced concrete structures members and behavior	2	10
Design methods and requirements using ACI building code.	1	5
First major exam.	0.5	2
Flexural behavior of reinforced concrete beams, analysis and design.	6	30
Second major exam.	0.5	2
Shear in beams	2	10
Bond, development length of reinforcement.	2	10
Final exam.	1	4
Total	15	73

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	28	0			73
Credit	3	0	0			3

3. Additional private study/learning hours expected for students per week.
3 to 4 hours per week on an average for self-study and problem solving — 3-4

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	Understand the basics of Reinforced Cement Concrete	– 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.	• Asking questions on different topics. • Major and End-semester tests that will force the student to think and apply the knowledge. • Assignment problems, Exercise, quizzes, Discussions.
1.2	Understand the principles of Ultimate Limit State design		
1.3	Learn the ACI provisions for design for flexure, shear etc.		
1.4	Understand the provisions of ACI for development length and splicing		
2.0	Cognitive Skills		
2.1	Explaining the theoretical background in lecture	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes so that students can apply the knowledge gained.	• Asking the student to solve questions on different topics. • Major and End-semester tests that will force the student to think and apply the knowledge. • Assignment problems, Exercises. • Asking the students to solve problems on white board guiding him when required. • Quizzes and Exams. • Asking students to participate in oral discussion during the class.
2.2	Problem solving through well defined, planned and searching questions		
2.3	Provide notes in the form of slides		
2.4	Problems solving – Sample problems and problems solved by students on the Board with support and guidance required.		
2.5	Assignment problems for applications		
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in		

	urgent.	situation.	participating effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as internet, and smart board.		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	8	20
2	Second exam	13	20
3	Quizzes	Continuous	10
4	Report, and homework assignments	Continuous	10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 5 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks M.Nadim Hassoun, Akthem Al-Manaseer, “Structural concrete: Theory and design”, John Wiley & Sons , 5 th edition.
2. List Essential References Materials (Journals, Reports, etc.) F. E. Richart, Jr; James G. MacGregor, . Wight, “REINFORCED CONCRETE: Mechanics and Design”, 6th edition.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) International Journal of Concrete Structures and Materials, Springer. Grider, A.; Ramirez, J.A. and Yun, Y.M. “Structural Concrete Design”, CRC Press LLC, 1999
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking Reinforced concrete Design software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need raw materials (soil samples) each semester, also to add some instruments to the Reinforced Concrete and Materials lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 240

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Hydraulics I CE 240			
2. Credit hours: 3 (2,1,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Fall semester, sophomore year			
6. Pre-requisites for this course (if any): GE 108			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - To know the fundamentals of engineering fluid mechanics and hydraulics.
   - Applying the hydrostatic pressure concepts in computing the hydrostatic forces on submerged surfaces.
   - Expose students to apply the governing equations of fluid mechanics and hydraulics.
   - To demonstrate the importance and applications of hydraulics in various civil engineering fields.

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.
   - Placing before the class mind provoking and thinking questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction, dimensions and unites	1	5
Fluid properties	2	10
Pressures and its measurements	1	5
Hydrostatic forces on plan and submerged surfaces	2	10
Exam 1	0.5	2
Fluid flow concept, continuity equation	2	10
Energy equation, Bernoulli equation and its applications	2	10
Momentum equation and its applications	2	10
Pipe flow and energy losses	1	5
Exam 2	0.5	2
Dimensional analysis and similarity	1	5
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	14	30			74
Credit	2	0	1			3

3. Additional private study/learning hours expected for students per week.
2-3 hours per week on an average for self-study and problem solving — 2-3

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 recognize dimensions and units for different physical properties.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students will be able to describe different fluid properties.		
1.3	The students will be able to name the different pressure measurements devices.		
1.4	The students will be able to define the concepts of flow motion and classify it.		
1.5	The students will be able to memorize laws of fluid motion.		
2.0	Cognitive Skills		
2.1	The students will be able to analyze actual problems using viscosity law.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students will be able to develop earning to calculate the pressure using different types of manometers.		
2.3	The students will be able to estimate the hydrostatic force on submerged surfaces.		
2.4	The students will be able to prepare laboratory report and to interpret the results.		
2.5	The students will be able to compare experimental results in the laboratory with theoretical values.		
3.0	Interpersonal Skills & Responsibility		
3.1	The students will be able to justify the solution of the problems.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating
3.2	The students will be able to demonstrate skills in the problem solving.		

			effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	The students will be able to demonstrate the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	The students will be able to demonstrate the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems
4.3	The students will be able to assess the modern information technology such as internet and smart board.		• Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
5.0	Psychomotor		
5.1	The students will be able to produce problems in reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	15
2	Second exam	12	15
3	Quizzes		15
4	Report, and homework assignments		15
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Nalluri and Featherstone "Civil Engineering Hydraulics", McGraw-Hill, Latest edition.
2. List Essential References Materials (Journals, Reports, etc.) All ASCE Journals
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Douglas , "Fluid Mechanics", Prentice Hall.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking Hydraulics software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for experiments.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.

- A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
- Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 241

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Hydraulics II CE 241			
2. Credit hours: 3 (2,1,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester, sophomore year			
6. Pre-requisites for this course (if any): CE 240			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - To know the fundamentals of pipes and open channels flow.
   - To know the types of pumps and their characteristics and their relation with pipes system.
   - Expose students to apply the governing equations of pipe and open channel flows to actual engineering problems.
   - To demonstrate the importance and applications of pipe and open channel flows in various civil engineering fields.

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is made on understanding the concepts.
   - Placing before the class mind-provoking and thoughtful questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Classification of pipes flow/ laminar and turbulent	1	5
Friction losses and Minor losses/ Energy gradient line	2	10
Pipes in series and parallel/ pipes networks	1	5
Pumps characteristics and classification	2	10
Exam 1	0.5	2
Open channel flow (Manning and Chezy equation, best hydraulic section)	2	10
Specific energy and its application (abrupt change in channel)	2	10
Hydraulic jump	2	10
Gradually varied flow	2	10
Exam 2	0.5	2
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	14	30			74
Credit	2	0	1			3

3. Additional private study/learning hours expected for students per week.
   2-3 hours per week on an average for self-study and problem solving — 2-3

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 recognize types of flow in pipes and open channel.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students will be able to know frictional losses and local losses in pipes.		
1.3	The students will be able to name different types of pumps and their characteristics.		
1.4	The students will be able to memorize the concepts of open channel flow and write them.		
1.5	The students will be able to describe rapidly and gradually varied flow in open channels.		
2.0	Cognitive Skills		
2.1	The students will be able to measure frictional losses in actual pipe flow problems.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students will be able to design the open channel cross-sections.		
2.3	The students will be able to analyze abrupt flow in channel transition.		
2.4	The students will be able to calculate various parameters in basic pipe flow problems.		
2.5	The students will be able to interpret results of the laboratory experiments.		
3.0	Interpersonal Skills & Responsibility		
3.1	The students will be able to justify the solution of the problems.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and
3.2	The students will be able to demonstrate skills in the problem solving.		

		situation.	participating effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	The students will be able to demonstrate the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	The students will be able to demonstrate the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems
4.3	The students will be able to assess the modern information technology such as internet and smart board.		• Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
5.0	Psychomotor		
5.1	The students will be able to produce problems in reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	15
2	Second exam	12	15
3	Quizzes		15
4	Report, and homework assignments		15
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Nalluri and Featherstone "Civil Engineering Hydraulics", McGraw-Hill, Latest edition.
2. List Essential References Materials (Journals, Reports, etc.)

All ASCE Journals
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Chow, V. , "open channel hydraulics", McGraw-Hill, Latest edition.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking Hydraulics software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for experiments.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 311

Course Specifications

Institution: Majmaah University	Date of Report: 2/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Soil Mechanics and Foundation Engineering 2 CE 311			
2. Credit hours: 3 (2,1,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Fall semester, junior year			
6. Pre-requisites for this course (if any): CE 210			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. E-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves class room teaching with exclusive exercise and laboratory parts. The teaching involves explanations & discussions subsequently with preparation of laboratory reports and additional work as assignments.

B Objectives

1. What is the main purpose for this course?
   1. To investigate the site consisting of soils/ rocks
   2. To evaluate the properties of soils/ rock necessary for various type of foundations.
   3. To learn the types of foundations.
   4. To estimate the bearing capacities of shallow and deep foundations.
   5. To design deep foundation based on known values of bearing capacities.
   6. To design the group piles and well foundations.
   7. To design the sheet pile walls.
   8. To analyze and design the retaining walls.

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)

- The course content is going shortly for revision as per the latest research. Using the advantage of IT, the reference material is posted on the website so that the students can benefit from them.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Soil and Rock Investigations	2	10
Properties evaluation for design of foundations	1	5
Types of Foundations	1	5
Bearing Capacity Concept	1	5
Determination of Bearing Capacities of Shallow Foundations	2	10
Exam 1	0.5	2
Bearing Capacity of Deep Foundations	1	5
Design of Pile Foundation	2	10
Introduction to Caissons	1	5
Sheet Pile Walls	1	5
Exam 2	0.5	2
Retaining Walls	2	10
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	15	29	-	-	74
Credit	2	0	1	-	-	3

3. Additional private study/learning hours expected for students per week.
   3-4 hours per week on an average for self-study and problem solving — 3-4

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 shall be able to record various types of soils at different locations by exploration.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester examinations that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students shall be able to write about the soil properties for design of foundation.		
1.3	The students shall be able to list different types of foundations.		
1.4	The students shall be able to memorize various bearing capacity equations for shallow foundations.		
1.5	The students shall be able to recall estimation of lateral pressure on retaining walls.		
2.0	Cognitive Skills		
2.1	The students shall be able to compare the shallow and deep foundations.	- 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 students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students shall be able to interpret the lab report of the soils.		
2.3	The students shall be able to calculate bearing capacities of shallow and deep foundations.		
2.4	The students shall be able to design shallow and deep foundations.		
2.5	The students shall be able to evaluate pressure exerted on sheet pile walls.		
3.0	Interpersonal Skills & Responsibility		
3.1	The students shall be able to demonstrate their skills in the subject and be able to assess themselves.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating
3.2	The students shall be able to evaluate the relevant properties of the soils for design of foundations.		

			effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	The students shall be able to assess suitability of foundation.	- Asking students to solve problems in the class by guiding him. - Asking the students to speak on a particular topic.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.2	The students shall be able to demonstrate their communication skills in the subject.		
4.3	The students shall be able to assess the relevant material through IT and be able to criticize it.		
5.0	Psychomotor		
5.1	The students shall be able to demonstrate their high quality skills in the subject by applying the learning outcome to the real problems.	- A small real project is given to the students to demonstrate their skills	• Checking and discussion on the solution of the project problems.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	8	15
2	Second major exam	14	15
3	Quizzes	-	15
4	Report, and homework assignments	-	15
5	Final Exam	16	40
6	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

1. List Required Textbooks Das, B, M. "Principle of Geotechnical Engineering", Thomson-Engineering, Latest edition.
2. List Essential References Materials (Journals, Reports, etc.) Boweles, J . E., "Engineering Properties of Soils and their Measurements", McGraw-Hill, Latest edition.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

• Berry, P.L. and Reid, D., "An Introduction to Soil Mechanics", Mc Graw-Hill, 1987 • B.C. Punmia , "Soil Mechanics and Foundation Engg" 2005.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking soil mechanics software.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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) Laboratory equipment are available for some tests. But we need raw materials (soil samples) each semester, also to add some instruments to the Soil Mechanics lab.

G- Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 313

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Properties and Strength of Materials 2 CE 313			
2. Credit hours: 3 (2,1,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered Spring semester, junior year			
6. Pre-requisites for this course (if any): CE 212			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	100
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - Impart knowledge about the properties of plain concrete in the different stages.
   - Understand the role of each of the constituent materials to the obtained properties of concrete.
   - Understand the effect of the different parameters on the properties of concrete.
   - Understand the induced stresses and deformation when the concrete element subjected to the impact or repeated loading or static loading.
   - Study the concrete mix design methods.

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)
   - Course delivery by citing real life examples and problems
   - Emphasis on understanding concepts and illustrating applications to problems
   - Solving problems through assignment on each topic
   - Background materials from the books are provided
   - Extensive interaction with students

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Definitions and classification of Fresh concrete (Consistency, Workability, Bleeding)	2	10
Segregation of aggregate	2	10
Hardened Concrete Strength (Compressive Strength, Tensile Strength, Shear Strength, Bond with reinforcement, Factors affecting strength)	2	10
Exam 1	0.5	2
Elasticity, Durability, Creep and Shrinkage of concrete	1	5
Mix Design (ACI Method)	3	15
Exam 2	0.5	2
Mix Design (Trial Method, British Method)	3	15
Final Exam	1	5
Total	15	74

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	14	30			74
Credit	2	0	1			3

3.Additional private study/learning hours expected for students per week. 3-4 hours per week on an average for self-study and problem solving	3-4

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	Learn experimental techniques for determining aggregate properties like finess modulus and grading, abrasion and impact, setting times of cement and grain size distribution of aggregates	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Solve problems and understand finess modulus, shrinkage and creep.		
1.3	Study the equipment used for all the tests above		
1.4	Study mix design of concrete by different methods like laboratory trial method and absolute volume method.		
1.5			
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic	• 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, Major and Final exams which will force the student to think and apply
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		

		fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	concepts and principles learnt.
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	15
2	Second exam	12	15
3	Quiz, Exercise questions and participation		10
4	Lab (Homework, Report, Project and assignments)		10
5	Tutorials (Homework, Report, Project and assignments)		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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks - Gere & Timoshenko, "Mechanics of Materials", SI edition, Prentice Hall, (Latest edition). - Harmer E. Davis, "The Testing of Engineering Materials", McGraw-Hill, (Latest edition). - Jain O.P. & Jaikrishna, "Plain & Reinforced Concrete", Vol. I., (Latest edition). - Shetty M.S., "Concrete Technology: Theory and Practice", (Latest edition).
2. List Essential References Materials (Journals, Reports, etc.) • Mechanics of Materials – Gere and Timoshenko – Prentice Hall -2008.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking concrete mix design software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need to add some instruments to the structural analysis lab.

G- Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester.

- Study: The experiences of the students will be collected through a survey.
- Act: Effective teaching strategies will be implemented and revised as more experiences are gained.

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)
   - Check marking of a sample of examination papers.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
   - Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.
   - A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
   - Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 316

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Structural Analysis 3 CE 316
2. Credit hours: 3 (3,1,0)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Spring semester, junior year
6. Pre-requisites for this course (if any): CE 215
7. Co-requisites for this course (if any): None
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	100
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-

Comments:
The course involves Lectures and exercises parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course? • Analysis of indeterminate structures with different methods of solution. • Apply learned methods of solution to different structures. • Represent the absolute curves of shear and moment for statically determinate and indeterminate beams and frames graphically.
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) • Course delivery by citing real life examples and problems • Emphasis on understanding concepts and illustrating applications to problems • Solving problems through assignment on each topic • Background materials from the books are provided • Extensive interaction with students

C. Course Description

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Deflection of indeterminate structures; trusses, beams, plane frames using energy methods	3	12
Analysis of indeterminate structures; trusses, beams, plane frames by the force (consistent deformation) Method	3	12
Exam 1	0.5	2
Displacement method of analysis; Slope-Deflection equations	2	8
Displacement method of analysis; Moment Distribution	2	8
Exam 2	0.5	2
Beams and frames having non-prismatic members	3	12
Final Exam	1	4
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

1. Additional private study/learning hours expected for students per week.
6-8 hours per week on an average for self-study and problem solving — 6-8

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	Determine deflections of indeterminate structures by direct methods.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Analyze of indeterminate structures by force and displacement methods.		
1.3	Analyze of beams and plane frames having non-prismatic members.		
1.4			
1.5			
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		
2.5			
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		

4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	15
2	Second exam	12	15
3	Quiz, Exercise questions and participation		10
4	Homework, Report, Project and assignments		10
5	Tutorials		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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Russell G. Hibbeler, “Structural Analysis”, 8th edition, Prentice – Hall.
2. List Essential References Materials (Journals, Reports, etc.) • C.K. Wang, "Intermediate Structural Analysis", Tata McGraw Hill • Wilbur, Norris "Structural Analysis", McGraw Hill

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Chajes, “Structural Analysis”, 2nd edition, Prentice – Hall, 1990. • Tartaglione, L.C., “Structural Analysis”, McGraw – Hill, 1991. • Reddy, C.S., "Basic Structural Analysis", Tata McGraw Hill. • F.L. Singer, "Engineering Mechanics", Harper & Row Publishers • Gupta and Pandit, "Structural Analysis", Tata McGraw Hill
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking structural analysis software’s.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need to add some instruments to the structural analysis lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.

- Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 318

Course Specifications

Institution: Majmaah University	Date of Report December 14, 2014
College/Department Engineering/Civil and Environmental Engineering Department	

A. Course Identification and General Information

1. Course title and code: Reinforced Concrete Design 2 CE 318
2. Credit hours 3 (3, 2, 0)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered Spring semester, junior year
6. Pre-requisites for this course (if any) CE 217
7. Co-requisites for this course (if any) None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
e. Other	✓	What percentage?	10

Comments:

B Objectives

1. What is the main purpose for this course?
   - To design the reinforced concrete two-way slab system using Saudi Building Code.
   - To study the structural components in the reinforced concrete buildings for torsion.
   - To study the design of continuous beams and one-way floor system using ACI method of coefficients.
   - To understand the design of footings.
   - To learn the design of staircases.
   - To study the design of retaining walls.
   - To have concepts of development length, anchorage and splicing of reinforcement in reinforced concrete structures.

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)
   - Continuous updating of the information, knowledge and skills (new research or new knowledge obtained through use of references, books, magazines, internet; etc….).
   - Regular evaluation of the course contents.
   - Delivery of the course by solving examples and problems.
   - Explaining the applications through the illustrations.
   - Solving problems through homework assignments on each topic.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Continuous beams and one-way floor system.	1, 2, 3	15
Two-way slab system.	4, 5	10
Footings design.	6, 7	10
Staircases.	8, 9	10
Retaining walls.	10, 11	10
Design for torsion.	12, 13	10
Development length, anchorage and splicing of reinforcement.	14, 15	10
Total	15	75

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

	Lecture	Tutorial	Laboratory	Practical:	Others:	Total
Contact Hours	45	30	-	-	-	75
Credit	3	-	-	-	-	3

3. Additional private study/learning hours expected for students per week.
   2-3 hours per week on an average for self-study and problem solving — 2 – 3 Hours

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	Knowledge		
	• The students will be able to design the structural systems and recognize the interaction with non-structural components. • The students will be able to learn their professional responsibility in achieving safe and economical structural design. • The students will be able to recognize the role of design engineer as a team member of a civil engineering project. • The students will be able to understand the design of structural concrete to resist bending, tensile and compressive stresses. • The students will be able to design and analyze the structural components according to Saudi Building Code (SBC 304).	• Lectures using PowerPoint presentations, use of smart board and projector. • To hear the students' problems about the course of study and solving them. • Distribution of handouts pertaining to the lectures.	• Oral feedback from the students. • Major and final exams. • Students class participation. • Lab reports. • Assignments/exercises for the applications that force the students to think and apply the gained knowledge.
2	Cognitive Skills		
	• The students will be able to prepare a topic related to the course of study and present it for the whole class. • The students will be able to solve the assignments given during the course of study. • The students will be able to think critically to solve the problems by giving the reasons for each problem solved. • The students will be able to use step by step procedure in solving the problems. • The students will be able to realize the importance of problem definition and solutions them using the alternatives.	• Explaining the principles and concepts through solving practical problems. • Asking the students to suggest a solution before giving them the correct answers. • Asking the students to explain the steps adopted in solution of the problems and ensure that they understand the problems.	• Presentations given by the students. • Class participation by the students. • Students are required to deliver a summary of the given topics related to the course of study. • Asking the students to participate in an oral discussion during the class sessions. • Setting assignment problems or project statements applying the principles and concepts. • Setting of questions in the quizzes, and major exams force the students to think and apply the

		• Conducting field visits to construction projects to explain the ideas and concepts to the students.	learnt concepts and principles.
3	Interpersonal Skills & Responsibility		
	• Students are expected to develop teamwork activities. • They may be involved in communication ability with class-mates with confidence, listening and understanding the problem solving, decision making abilities. • Perceive as more calm, confident and charismatic, qualities that are often endearing or appealing to others. • Being more aware of interpersonal skills can help to improve their ability. • Help the student to solve the problem by asking questions during the office hours. • Access to the faculty member by the student using, email, website and even phone calls in the urgency makes it more beneficial.	• Encourage students to engage themselves in communication use, appropriate questioning to develop understanding among each other. • In certain phases of the class, students should be given small individual tasks which make focusing on the topic. • Debates are useful to organize a topic.	• Homework and quizzes are always a good method to assess the educational growth of the students. • Working in group(s) such as in the laboratory or projects and teamwork activities. • Incentive such as bonus marks to those students who are improving and participating effectively in the class.
4	Communication, Information Technology, Numerical		
	• The students will be able to use the internet for searching electronic journals regarding topics of their interest/study courses. • The students will be able to prepare and present subjects using different educational strategies (PowerPoint presentations, etc….) • The students will be able to develop the computer skills in preparing the presentations. • The students will be able to work as teamwork. • The students will be able to develop the communication skills through interactive discussions during the seminars. • The students will be able to have familiar with the modern information technology such as the interment.	• Students are asked for delivering a summary regarding the topics related to the course. • Teaching the weak students again by giving them extra time that have problem in understanding. • Giving different types of questions for each student, enabling them to imply the rules and getting the result. • Asking the students to solve	• Clearing the methods and rules to solve the problems numerically. • Each log delivered by the students is objectively evaluated. • Asking the questions during discussion of the topics. • Highlighting the concepts and principles discussing through practical problems. • Asking the students to participate in evaluating their classmates.

		problems in the class by providing them the guidance.	

5. Schedule of Assessment Tasks for Students During the Semester			
No.	Assessment task	Week Due	Proportion of Total Assessment
1.	First Major Exam	7	15
2.	Homework assignments	During the Term	10
3.	Quizzes	During the Term	10
4.	Design Project	During the Term	10
5.	Second Major Exam	13	15
6.	Final Exam	16	40
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 one hour the students can consult the teacher individually or in a group for their difficulties in the subject. In all, the teaching staff is available for more than 8 hours per week for getting the academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks

- Charles, G.S. and Chu-Kia W., "Reinforced Conocrete Design", 5th Edition, Harper and Row Pub., 1994.

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)

- Steven H. Kosmatka, "Design and Control of Concrete Mixture, Portland", Portland Cement Association.
- El-Dakhakhni, W.M., "Modern of Reinforced Conocrete", The Anglo Egyptian Bookshop, 1990.
- Mac Gregor, J.G., "Reinforced Conocrete, Mechanics and Design", Prentice Hall, 1992.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)

- Selected papers, and video clips from U-tube and trustable web sites.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.

- Seeking software for design of reinforced concrete components such as SAP2000, ETABS; etc

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 (10 students/class) is really not wide enough especially with too many equipment

and number of students in one session.
2. Computing 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) • Laboratory equipment is available for some tests. But raw materials (reinforcing steel, aggregate, and cement) are needed each semester. New testing apparatus is required to be purchased for concrete material and structural engineering labs.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 320

Course Specifications

Institution: Majmaah University		Date of Report	December 14, 2014
College/Department	Engineering/ Civil and Environmental Engineering		

A. Course Identification and General Information

1. Course title and code: Structural Steel Design 1 CE 320			
2. Credit hours	3 (3, 2, 0)		
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered	Fall semester, junior year		
6. Pre-requisites for this course (if any) CE 214			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
e. Other	✓	What percentage?	10
Comments:			

B Objectives

1. What is the main purpose for this course?

- To analyze and design of roof trusses.
- To understand the behavior and design of tension and compression members.
- To design the column bases and footings according to AISC specifications.
- To design the steel beams.
- To design welded and bolted connections in the steel structures.
- To design steel framed structures.
- To tackle real civil engineering problems of designing steel structures in the form of a project.

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)

The course content is going shortly for revision as per the latest research. Using the advantage of IT, the reference material is posted on the website so that the students can benefit from it.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Design of tension and compression members.	1, 2, 3	15
Design of steel beams.	4, 5	10
Analysis and design of roof trusses.	6, 7	10
Design of steel frames.	8, 9	10
Welded and bolted connections.	10, 11	10
Column bases and footings.	12, 13	10
Design project.	14, 15	10
Total	15	75

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

	Lecture	Tutorial	Laboratory	Practical:	Others:	Total
Contact Hours	45	30	-	-	-	75
Credit	3	-	-	-	-	3

3. Additional private study/learning hours expected for students per week.
2-3 hours per week on an average for self-study and problem solving — 2 – 3 Hours

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	Knowledge		
	• The students will be able to design the steel structural systems and recognize the interaction with non-structural	• Lectures using PowerPoint presentations, use	• Oral feedback from the students.

	components. • The students will be able to learn their professional responsibility in achieving safe and the economical design. • The students will be able to recognize the role of design engineer as a team member in a civil engineering project. • The students will be able to understand the design of structural steel to resist the bending, tensile and compressive stresses. • The students will be able to design and analyze the structural steel according to Saudi Building Code (SBC 306).	of smart board and projector. • To hear the students' problems about the course of study and solving them. • Distribution of handouts pertaining to the lectures.	• Major and final exams. • Students class participation. • Lab reports. • Assignments/exercises for the applications that force the students to think and apply the gained knowledge. • •
2	Cognitive Skills		
	• The students will be able to prepare a topic related to the course of study and present it for the whole class. • The students will be able to solve the assignments given during the course of study. • The students will be able to think critically to solve the problems by giving the reasons for each problem solved. • The students will be able to use step by step procedure in solving the problems. • The students will be able to realize the importance of problem definition and solutions them using the alternatives.	• Explaining the principles and concepts through solving practical problems. • Asking the students to suggest a solution before giving them the correct answers. • Asking the students to explain the steps adopted in solution of the problems and ensure that they understand the problems. • Conducting field visits to construction projects to explain the ideas and concepts to the students.	• Presentations given by the students. • Class participation by the students. • Students are required to deliver a summary of the given topics related to the course of study. • Asking the students to participate in an oral discussion during the class sessions. • Setting assignment problems or project statements applying the principles and concepts. • Setting of questions in the quizzes, and major exams force the students to think and apply the learnt concepts and principles.
3	Interpersonal Skills & Responsibility		
	• Students are expected to develop teamwork activities.	• Encourage students to engage themselves in	• Homework and quizzes are always a good method to assess the

	• They may be involved in communication ability with class-mates with confidence, listening and understanding the problem solving, decision making abilities. • Perceive as more calm, confident and charismatic, qualities that are often endearing or appealing to others. • Being more aware of interpersonal skills can help to improve their ability. • Help the student to solve the problem by asking questions during the office hours. Access to the faculty member by the student using, email, website and even phone calls in the urgency makes it more beneficial.	communication use, appropriate questioning to develop understanding among each other. • In certain phases of the class, students should be given small individual tasks which make focusing on the topic. • Debates are useful to organize a topic.	educational growth of the students. • Working in group(s) such as in the laboratory or projects and teamwork activities. • Incentive such as bonus marks to those students who are improving and participating effectively in the class.
4	Communication, Information Technology, Numerical		
	• The students will be able to use the internet for searching electronic journals regarding topics of their interest/study courses. • The students will be able to prepare and present subjects using different educational strategies (PowerPoint presentations, etc….) • The students will be able to develop the computer skills in preparing the presentations. • The students will be able to work as teamwork. • The students will be able to develop the communication skills through interactive discussions during the seminars. • The students will be able to have familiar with the modern information technology such as the interment.	• Students are asked for delivering a summary regarding the topics related to the course. • Teaching the weak students again by giving them extra time that have problem in understanding. • Giving different types of questions for each student, enabling them to imply the rules and getting the result. • Asking the students to solve problems in the class by providing them the guidance.	• Clearing the methods and rules to solve the problems numerically. • Each log delivered by the students is objectively evaluated. • Asking the questions during discussion of the topics. • Highlighting the concepts and principles discussing through practical problems. • Asking the students to participate in evaluating their class-mates.

5. Schedule of Assessment Tasks for Students During the Semester			
No.	Assessment task	Week Due	Proportion of Total Assessment
1.	First Major Exam	7	15
2.	Homework assignments	During the Term	10
3.	Quizzes	During the Term	10
4.	Design Project	During the Term	10
5.	Second Major Exam	13	15
6.	Final Exam	16	40
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 one hour the students can consult the teacher individually or in a group for their difficulties in the subject. In all, the teaching staff is available for more than 8 hours per week for getting the academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
   - Dayaratnam, "Design of Steel Structures".

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
   - AISC Manual of Steel Construction.
   - Leonard Spiegel & Limbrunner, "Applied Structural Steel Design", 4th edition, Prentice Hall.
   - Charles salmon, John Johnson, "Steel Structures", 4th edition, Harper Collins College Publisher.
   - Vazirani and Rawtani, "Design of Steel Structures".
   - Negi L.S., "Design of Steel Structures", Tata McGraw Hill.
   - Kazimi S.M. A. & Jindal R.S., "Design of Steel Structures", Prentice Hall of India.
   - Arya and Ajmani, "Design of Steel Structures", New Chand & Bros.
   - Ramchandran "Design of Steel Structures", Vol I & II.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
   - Selected Papers, and video clips from U-tube and trustable web sites.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
   - Seeking software for design of steel structures such as SAP2000, etc

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

2. Computing 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) • Laboratory equipment is available for some tests. But raw materials (reinforcing steel, aggregate, and cement) are needed each semester. New testing apparatus is required to be purchased for concrete material and structural engineering labs.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 360

Course Specifications

Institution: Majmaah University	Date of Report: 04/12/2014
College/Department Engineering/Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Environmental Engineering 1 CE 360
2. Credit hours 2 (2, 0, 0).
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered Fall semester, junior year
6. Pre-requisites for this course (if any) GE 105
7. Co-requisites for this course (if any) None.
8. Location if not on main campus.
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	■	What percentage?	70%
b. Blended (traditional and online)	■	What percentage?	30%
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-

Comments:

B Objectives

1. What is the main purpose for this course? To introduce the modern ways of environment concerns mitigations in order to feed the knowledge of the graduated engineer about the dangerous of the environmental pollution problems.
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) a) Use some web sites and YouTube to illustrate air and water pollution problems. b) Background materials from new books and recent published journals are provided. c) Focus in classroom on understanding the concepts. d) Encourage the students for mind provoking and thinking questions.

C. Course Description

3. Topics to be Covered		
List of Topics	No of Weeks	Contact Hours
Introduction to engineering pollution problems.	1	2
Impact of development on environment.	1	2
Liquid wastes and their disposals: overland, in streams, lake and sea.	2	4
Solid wastes, and management, characteristics, storage, collection, disposal.	2	4
Air pollution: sources, pollutants, effects and control.	3	6
Noise pollution: sources, effect and control.	2	2
E-wastes, Environmental regulations.	2	4
Concept of sustainable development.	2	4
Total	15	30

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	-	-	-	-	30
Credit	2	-	-	-	-	2

3. Additional private study/learning hours expected for students per week.	3-4

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	Define the environmental engineering recently problems.	Citing practical examples and problems on air and water pollutions. Understanding the concept by practical problem application	Induce the student to ask regular questions on various topics and concepts. Interactive problems

		in Majmaah or MU.	solving with students.
1.2	Outline the main pollution problems on air, water and soil that affect the whole environment.	Referring to the recently published materials and textbooks for problems applications. Extensive interaction with students through oral presentation and group discussions.	Exercise, tutorial and assignment to let the student apply the knowledge gained.
2.0	Cognitive Skills		
2.1	Justify the series steps taken to solve the environmental problems.	Explain principles and concepts through practice problems. To solve problems through research approach rather than the direct way.	Oral discussion with students to be involved in problem solving.
2.2	Making a precise decision on choosing the right solution or alternative solutions	Cooperative problems solving with students by asking them for anticipated solutions before solving the problems.	Quizzes and homework methods. First, Second and Final exams.
3.0	Interpersonal Skills & Responsibility		
3.1	During the office hours where student are urged to asked to solve problems.	Asking sequential questions to solve problems needed.	During office hours, to solve course problems
3.2	Using email and website to let the student to be in contact with his instructor.	Pay attention for every student case and circumstances to encourage show more effort.	Bonus marks for effective and participative students in classroom. Very few in this course (no-lab).
4.0	Communication, Information Technology, Numerical		
4.1	Using Trigonometry to solve engineering problems (Numerical skills).	Encourage the students to participate in class-problem solving method.	Questioning and discussion Focus on the concepts and principles through real life time.
4.2	To explain and then solve the problems by students themselves in the classroom.	Summer training programs by MU to experience the knowledge gained on field.	Improve the students numerical and communication skills by reciting from recently published journals
5.0	Psychomotor		
5.1	Let the students to manipulate air or water reverse-effects on human or animals	Class-room function	Questioning and discussion.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	Quizzes	4-13	10%
2	Assignments	4-13	20%
3	First Exam	6-8	15%
4	Second Exam	13-14	15%
5	Final Exam	16	40%

	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) - Teaching staff is available at least 6 hours per week. - Students can arrange appointments by email or oral for academic advice as well as solving problems.

E. Learning Resources

1. List Required Textbooks Weiner & Matthews, "Environmental Engineering", last Edition, Elsevier, last Edit.
2. List Essential References Materials (Journals, Reports, etc.) - Davis, and Cornwell, D., "Introduction to Environmental Engineering", McGraw-Hill, last Edit. - Hammer, "Water and Wastewater Technology", Prentice Hall, 1986. - Metcalf and Eddy, "Wastewater Engineering, Treatment, Disposal and Reuse", McGraw-Hill, 1993.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) The above are fairly enough.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) -Plenty are available through Google Scientific Research.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. - Not required. The above listed materials are more than enough.

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.) c) The size of lecture room is adequate. d) No lab required in this course.
2. Computing resources (AV, data show, Smart Board, software, etc.) N.E
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) N.E

G- Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.

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)
   - Check marking of a sample of examination papers.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
   - Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.
   - A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
   - Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 362

Course Specifications

Institution: Majmaah University	Date of Report: 04/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Water Supply and Sewage Engineering CE 362			
2. Credit hours: 2 (2,1,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Fall semester, junior year			
6. Pre-requisites for this course (if any): CE 241			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10
Comments: The course involves exercises depends on explaining, reports, home works and assignments.			

B Objectives

1. What is the main purpose for this course?
   - Understand the principals of pre-design studies for water supply networks and sanitary sewers networks.
   - Acquire the basic knowledge about distribution networks planning.
   - Be familiar with the different units in the water supply networks.
   - Design sanitary and storm sewers.
   - Solve existing water supply networks.
   - Deal with more advanced water supply networks and estimate the costs.

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)
   - To provide the understanding of the principals of water supply engineering.
   - Understand water purification and wastewater treatment processes.
   - Capable to design water supply networks.
   - Design sanitary and storm sewers.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction: Scope and Practical Applications of the Water Supply and Sewage Engineering	2	6
Water Quality Parameters: Physical, Chemical and Biological Water Quality Parameter	2	6
Estimation of Water and Waste Water Quantities	2	6
Water Treatment Process: Primary, Secondary, Tertiary and Advanced Treatment and Problems	2	6
Planning and Design of Water Supply Networks,	1	3
Wastewater Characteristics: Measurement and Analysis	1	3
Planning and Design of Sanitary and Storm Sewers: Problem	2	6
Introduction to Process of Waste Water Treatment.	1	3
Process of Waste Water Treatment.	2	6
Total	15	45

	Lecture	Tutorial		Other:	Total
Contact Hours	30	15			45
Credit	2	0			2

2. Additional private study/learning hours expected for students per week.
   2-3 hours per week on an average for self-study and problem solving — 2-3

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	Basic knowledge about distribution networks planning.	- Course delivery by citing real life examples and problems - Emphasis on understanding concepts and illustrating applications to problems - Solving problems through assignments on each topic - Background materials from the books are provided. - Extensive interaction with students.	- Regularly asking questions on different topics and concepts - Interactive problem solving with students. - Placing before the class mind provoking and thinking questions - Assignment problems, Exercise / tutorial problems for applications that will force the students to think and apply the knowledge gained. - Mid-term and End-semester tests that will force the student to think and apply the knowledge.
1.2	Principals of pre-design studies for water supply networks and sanitary sewers, combined sewers networks.		
1.3	Water purification and wastewater treatment processes.		
1.4	Basic designing of water supply networks.		
1.5	Wastewater Treatment processes and Plant lay out.		
2.0	Cognitive Skills		
2.1	Thinking through problems solving, reasoning for each problem solved	- Explaining principles and concepts through real life problems - Interactive problem solving with students. - Asking a student to explain the steps adopted in the problem in Summarize - Asking searching questions on topic fundamentals - Setting quiz and exercise problems so that students can apply the knowledge gained - Setting M-1 and M-2 problems which will force a student to think and apply the knowledge in an examination situation.	- Asking students to solve the problem in class. - Setting assignment problems which will apply principles and concepts - Problems in Quiz, Mid Term Test and Final exams which will compel the student to think and apply concepts and principles learnt.
2.2	Remembering equations and principles		
2.3	Reasoning in solving a problem step by step.		
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the	- Solve the problems by	- Group work in

	problem by asking questions during the office hour	asking sequential questions. - Paying personal attention to each student and caring about his situation.	laboratory work and team activity. - Bonus marks to those who are improving and participating effectively in the class.
3.2	Otherwise not many opportunities to develop these skills in this course		
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	- Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		- Highlighting the concepts and principles through real life problems - Asking the students to solve the numerical part and check that the answers are tallying with notes. - Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	- Questioning

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	20
2	Second major exam	12	20
3	Quizzes	-	10
4	Report, and homework assignments	-	10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks - Weiner & Matthews, "Environmental Engineering", 4th Edition, Elsevier.
2. List Essential References Materials (Journals, Reports, etc.) - Davis, and Cornwell, D., "Introduction to Environmental Engineering", McGraw-Hill, last edition. - Hammer, "Water and Wastewater Technology", Prentice Hall, 1986 - Metcalf and Eddy, "Wastewater Engineering, Treatment, Disposal and Reuse", McGraw-Hill, 1993.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) - Environmental Engineering, Howard S. Peavy, Donald R. Rowe, George Tchobanoglous, McGraw-Hill, Edition: 7, illustrated, last edition.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. No

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need raw materials (waste water samples) each semester, also to add some instruments to the Environmental Engineering lab.

H- Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.

5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.
   - Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.
   - A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
   - Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 370

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : 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. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Fall semester, sophomore year
6. Pre-requisites for this course (if any): Math 107
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	✓	What percentage?	20
c. E-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves class room teaching with exclusive exercise and laboratory parts. The teaching involves explanations & discussions subsequently with preparation of laboratory reports and additional work as assignments.

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 leveling 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, the reference material is posted on the instructor's website so that the students can follow easily.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Basic Definitions: What is Surveying? - Plane Surveying - Topographic Surveying – Geodesy - Photogrammetric - GIS, Remote Sensing – GPS.	1	5
Units of Measurement: Metric equivalents – Tables - Field notes - Methods of keeping notes - Errors and mistakes - Accuracy and Precision.	1	5
Measurement of Distances: Horizontal distance – Chains - Taps and its equipment - slope measurement by vertical angles.	1	5
Measurement of Angles: Horizontal angles - Vertical angles - Angles by compass.	1	5
Traverse Surveys and Computations: Traverse - Open traverse - Closed Traverse - Traverse computations - Traverse closure - Methods of plotting traverses - Cadastral surveying - Practical exercises - Planimeter and its applications	2	10
Exam 1	0.5	2
Leveling: General - Longitudinal leveling - Cross sections - Trigonometric leveling - Direct differential leveling -the Dumpy level - Sources of error in leveling. Height of Instrument Method – Rise and Fall Method - Profiles and areas measurement	2	10
International map Numbering	1	5
Field operations with transit	1	5
Areas and Volumes: areas of Regular and Irregular areas- Trapezoidal method - Simpson's one third rule, Volume calculations	2	10
Exam 2	0.5	2
Earthwork quantities: Remarks - Cross Sections - Distance between Cross sections - Calculation of areas - Volume by average end area - Earthwork quantities	1	5
Contour maps	1	5
Total	15	74

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	32	16	26	-	-	74
Credit	2	0	1	-	-	3

3. Additional private study/learning hours expected for students per week. Three to four hours per week on an average for self-study and problem solving.	3-4

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 shall be able to understand different types of surveying	– Course delivery by citing real life examples and problems. – Emphasis on understanding concepts and illustrating applications to problems. – Conduct field measurements and creates maps for an urban area. – Revise some principles and rule in Algebra and integration. – Placing before the class mind-provoking and thinking questions.	• Regularly asking questions on different topics and concepts. • Major and End-semester examinations that will force the student to think and apply the knowledge. • Lab exam at the end of the course. • Reports and discussions.
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.		
2.0	Cognitive Skills		
2.1	The students shall be able to understand and locate International Map Numbering for any city.	- Solving surveying problems through assignments on each topic. - Explaining principles and concepts through real life problems - Asking the students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem.	• 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,
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.		

		- Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	Major and Final exams which will force the student to think and apply concepts and principles learnt.
3.0	Interpersonal Skills & Responsibility		
3.1	The students shall be able to demonstrate their skills in the subject and be able to assess themselves.	- Solve the problems by asking sequential questions. - Different access to the student to be close with the teacher using, email, website and even phone calls in urgent	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Help the student to solve the problem by asking questions during the office hour.		
4.0	Communication, Information Technology, Numerical		
4.1	The students shall be able to work in a team for data gathering using surveying instruments.	- Asking students to solve problems in the class by guiding them. - Asking the students to express his opinion on a particular topic. - Divided the students into small groups during the lab sessions and re-arranging the groups.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through mini projects. • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.2	The students shall be able to demonstrate and present their communication skills in the subject.		
4.3	Students have to be familiar with using the modern information technology such as internet, and smart board.		
5.0	Psychomotor		
5.1	The students shall be able to demonstrate their quality skills in the subject by applying the learning outcome to the real problems. (Example: Create maps using their own measurements)	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking..	• Checking and discussion on the solution of the project problems.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	15
2	Second major exam	13	15
3	Quizzes		10
4	Report, and homework assignments		10
5	Lab. Exam	15	10
6	Final Exam	16	40
	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

1. List Required Textbooks Barry, F. Kavanagh, "Surveying with Construction Application" (latest edition)
2. List Essential References Materials (Journals, Reports, etc.) Barry, F.K. and Gelnnbind, S.J., "Surveying: Principles and Applications", 5th edition, Prentice – Hall.
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Benton, A.R., and Philip, J.T., "Elements of Plane Surveying", International Edition, McGraw – Hill, 1991. • Davis, R.E., and Francis F.F., "Surveying - Theory and Practice", McGraw – Hill, (Latest edition). • Kanetkar and Kulkarni, "Surveying and Levelling", Vol I and II, Pune Vidyarthi Griha, (Latest edition). • N.N. Basak, "Surveying and Leveling", Tata McGraw Hill, (Latest edition). • R. Agor, "Surveying", Khanna Publishers, (Latest edition).
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers and demonstrations from trustable web sites.
5. 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 – (23 students/class) to avoid student movement. It is necessary to keep lectures for one course / level in the same classroom. - Lab spaces (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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 palnimeters and compasses.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 371

Course Specifications

Institution: Majmaah University	Date of Report: 2/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Surveying - II CE 371
2. Credit hours: 3 (2,1,2)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Fall semester, junior year
6. Pre-requisites for this course (if any): CE 370
7. Co-requisites for this course (if any): None
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. E-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10

Comments:
The course involves class room teaching with exclusive exercise and laboratory parts. The teaching involves explanations & discussions subsequently with preparation of laboratory reports and additional work as assignments.

B Objectives

1. What is the main purpose for this course?
   1. To introduce the EDM and Total Station.
   2. To determine distances, heights and bearings by using Total Station.
   3. To learn how to do the Traversing of an area.
   4. To plot Traversing data on the drawing sheet.
   5. To study various methods for balancing the closing error in the closed traverse.
   6. To calculate the omitted measurements in the traversing.
   7. To learn methods of setting up horizontal and vertical curves.
   8. To calculate various distances, bearings & heights from the terrestrial and aerial photographs.
   9. To introduce digital mapping of the area.

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)
   - The course content has been revised as per the latest research. Using the advantage of IT, the reference material is posted on the website so that the students can benefit from them.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction of EDM and Total Station and calculations	2	10
Traversing	1	5
Plotting the Traverse	1	5
Balancing the Closing Error	1	5
Calculation of omitted measurements	2	10
Exam 1	0.5	2
Setting out horizontal curves	2	10
Setting out vertical curves	2	10
Distances, height and bearing calculations from Terrestrial and aerial photographs	2	10
Exam 2	0.5	2
Digital Mapping	1	5
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	14	30	-	-	74
Credit	2	0	1	-	-	3

3. Additional private study/learning hours expected for students per week. 3-4

3-4 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 shall be able to memorize how to use EDM and Total Station.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester examinations that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The students shall be able to write about open and closed traverses.		
1.3	The students shall be able to tell about the horizontal and vertical curves.		
1.4	The students shall be able to recognize the use of photogrammetric surveying.		
1.5	The students shall be able to describe digital mapping process.		
2.0	Cognitive Skills		
2.1	The students shall be able to calculate distance, height and bearings by using Total Station.	- 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 students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students shall be able to reconstruct the Traverse on the drawing sheets.		
2.3	The students shall be able to prepare data for setting out horizontal and vertical curves.		
2.4	The students shall be able to evaluate the distance, height and bearings with photographs.		
2.5	The students shall be able to measure various parameters by using digital maps.		
3.0	Interpersonal Skills & Responsibility		
3.1	The students shall be able to demonstrate their skills in the subject and be able to assess themselves.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the
3.2	The students shall be able to demonstrate setting out horizontal and vertical curves.		

			class.
4.0	Communication, Information Technology, Numerical		
4.1	The students shall be able to interpret digital maps.	- Asking students to solve problems in the class by guiding him. - Asking the students to speak on a particular topic.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.2	The students shall be able to demonstrate their communication skills in the subject.		
4.3	The students shall be able to assess the relevant material through IT and be able to criticize it.		
5.0	Psychomotor		
5.1	The students shall be able to demonstrate their high quality skills in the subject by applying the learning outcome to the real problems.	- A small real project is given to the students to demonstrate their skills	• Checking and discussion on the solution of the project problems.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	8	15
2	Second major exam	14	15
3	Quizzes	-	15
4	Report, and homework assignments	-	15
5	Final Exam	16	40
6	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

1. List Required Textbooks Burr, F.K. and Glemen Bird, S.J., "Surveying, Principles and Applications", Prantice Hall, 2000
2. List Essential References Materials (Journals, Reports, etc.) Manuals of EDM, Total Stations, aerial camera and of GIS software's
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) • Moffitt, F.H. and Bouchard, H., "Surveying", Harper & Row, Publishers Inc., 1987

• Paul R. Wolf, "Elements of Photogrammetry", Mc Graw Hill 1983 • Kanetkar and Kulkarni, Surveying and Levelling", (Latest Edition)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Available GIS, AutoCAD software's.

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 (10 students/class) is really not wide enough especially with too many equipment and number of students in one session.
2. Computing 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 classrooms.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment is available for some tests. But we need more equipment.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 380

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Highway and Traffic Engineering CE 380			
2. Credit hours: 3 (3,1,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester, junior year			
6. Pre-requisites for this course (if any): CE 270			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	20

Comments:
The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.

B Objectives

1. What is the main purpose for this course?
   - Knowledge of highway planning, capacity, design controls and criteria. cross sectional elements, sight distances, horizontal, vertical alignments and intersections.
   - Knowledge of highway materials characterization, bituminous mixtures design, flexible pavement design, highway drainage, pavement evaluation and maintenance.
   - knowledge of components of traffic system, traffic stream, characteristics, traffic studies, parking, pedestrians, traffic safety, traffic signals, signs and markings, capacity of urban streets , intersections and congestion management.

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Highway planning and capacity	1	4
Design controls and criteria.	1	4
Cross sectional elements	1	4
Sight distances	1	4
Horizontal and vertical alignments	2	8
Exam 1	0.5	2
Intersections	1	4
Highway materials characterization	1	4
Bituminous mixtures design and flexible pavement design	2	8
Highway drainage	1	4
Exam 2	0.5	2
Pavement evaluation and maintenance	1	4
Components of Traffic system	1	4
Traffic stream characteristics, traffic studies, parking, pedestrians, traffic safety, traffic signals	2	8
Review before final exam	1	4
Total	15	68

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	44	14	-	-	-	68
Credit	3	0	-	-	-	3

3. Additional private study/learning hours expected for students per week. 2-3 hours per week on an average for self-study and problem solving	2-3

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 student will be able to recognize the function and scope of Transportation Engineering	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The student will be able to recognize problems and issues of Parking, traffic stream characteristics, traffic studies, pedestrians, traffic safety, traffic signals, Signs and Markings		
1.3	The student will be able to identify various types of at-grade and grade separated intersections configurations		
1.4	The student will be able to define different types of pavement distresses and maintenance activities, and identify the common causes of pavement distress		
2.0	Cognitive Skills		
2.1	The student will be able to analyze Speed-Volume-Density, Perform Highway Capacity Analysis and Describe Traffic Control System Components and Devices	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The student will be able to explain the elements of geometric design of highways and use appropriate methods to calculate value of each element		
2.3	The student will be able to design flexible pavements using the AASHTO design method		

		gained.	
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	20
2	Second exam	12	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
Highway Engineering. Paul H. Wright and Karen K. Dixon, 7th Edition, John Wiley & Sons, Inc.

Transportation Engineering- An Introduction C. Jotin Khisty and B. Kent Lall, 3rd Edition, Prentice Hall, 2003.
2. List Essential References Materials (Journals, Reports, etc.) 1-L.R. Kadiyali, "Principles and Practice of Highway Engineering", Khanna. Publications, (Latest edition). 2-Bent Thagesen, "Highway and Traffic Engineering in Developing Countries", Chapman & Hall, Latest edition). 3 -Martin Rogers, "Highway Engineering", Blackwell Science, (Latest edition). 4-Robinson & Thagesen, "Road Engineering for Development", 2nd. Edition. 5- Khanna S.K. and Justo C.E.G., "Highway engineering", Nem Chand, (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) none
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. 3D civil software (to be included in course).

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

G. Course Evaluation and Improvement Processes

6. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
7. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
8. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
9. 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) • Check marking of a sample of examination papers.
10. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.

- A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
- Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 419

Course Specifications

Institution: Majmaah University		Date of Report	December 14, 2014
College/Department	Engineering/ Civil and Environmental Engineering		

A. Course Identification and General Information

1. Course title and code: Reinforced Concrete Design 3 CE 419			
2. Credit hours 3 (3, 2, 0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered	Fall semester, Senior year		
6. Pre-requisites for this course (if any) CE 318			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
e. Other	✓	What percentage?	10
Comments:			

B Objectives

1. What is the main purpose for this course?
   - To understand the behavior and design of reinforced concrete columns for uniaxial and biaxial bending.
   - To design the reinforced concrete deep beams for flexure and shear.
   - To develop proficiency in the methods adopted by ACI / SBC for design of RC corbels.
   - To determine the immediate and long term deflections in reinforced concrete beams; and apply SBC provisions for crack and deflection control.
   - To design reinforced concrete frames.
   - To develop the procedures for design of RC domes.
   - To tackle real civil engineering problems of designing the structure in the form of a project.

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)
   - Regular evaluation of the course contents.
   - Delivery of the course by practical examples and problems.
   - Explaining the applications through the illustrations.
   - Solving problems through assignments and tutorials on each topic.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Short and long columns.	1, 2, 3	15
Serviceability, deflection and cracking.	4, 5	10
Deep beams.	6	5
Corbels.	7	5
Design of domes.	8, 9	10
Reinforced concrete frames.	10, 11, 12	15
Design project.	13, 14, 15	15
Total	15	75

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

	Lecture	Tutorial	Laboratory	Practical:	Others:	Total
Contact Hours	45	30	-	-	-	75
Credit	3	-	-	-	-	3

3. Additional private study/learning hours expected for students per week.
2-3 hours per week on an average for self-study and problem solving — 2 – 3 Hours

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	Knowledge		
	• The students will be able to design the structural systems and recognize the interaction with non-structural components. • The students will be able to learn their professional responsibility in achieving safe and economical structural design. • The students will be able to recognize the role of design engineer as a team member of a civil engineering project. • The students will be able to understand the design of structural concrete to resist bending, tensile and compressive stresses. • The students will be able to design and analyze the structural components according to Saudi Building Code (SBC 304).	• Lectures using PowerPoint presentations, use of smart board and projector. • To hear the students' problems about the course of study and solving them. • Distribution of handouts pertaining to the lectures.	• Oral feedback from the students. • Major and final exams. • Students class participation. • Lab reports. • Assignments/exercises for the applications that force the students to think and apply the gained knowledge.
2	Cognitive Skills		
	• The students will be able to prepare a topic related to the course of study and present it for the whole class. • The students will be able to solve the assignments given during the course of study. • The students will be able to think critically to solve the problems by giving the reasons for each problem solved. • The students will be able to use step by step procedure in solving the problems. • The students will be able to realize the importance of problem definition and solutions them using the alternatives.	• Explaining the principles and concepts through solving practical problems. • Asking the students to suggest a solution before giving them the correct answers. • Asking the students to explain the steps adopted in solution of the problems and ensures that they understand the problems. • Conducting field visits to construction projects to explain the ideas and	• Presentations given by the students. • Class participation by the students. • Students are required to deliver a summary of the given topics related to the course of study. • Asking the students to participate in an oral discussion during the class sessions. • Setting assignment problems or project statements applying the principles and concepts. • Setting of questions in the quizzes, and major exams force the students to think and apply the learnt concepts and principles.

		concepts to the students.	
3	Interpersonal Skills & Responsibility		
	• Students are expected to develop teamwork activities. • They may be involved in communication ability with classmates with confidence, listening and understanding the problem solving, decision-making abilities. • Perceive as more calm, confident and charismatic, qualities that are often endearing or appealing to others. • Being more aware of interpersonal skills can help to improve their ability. • Help the student to solve the problem by asking questions during the office hours. • Access to the faculty member by the student using, email, website and even phone calls in the urgency makes it more beneficial.	• Encourage students to engage themselves in communication use, appropriate questioning to develop understanding among each other. • In certain phases of the class, students should be given small individual tasks which make focusing on the topic. • Debates are useful to organize a topic.	• Homework and quizzes are always a good method to assess the educational growth of the students. • Working in group(s) such as in the laboratory or projects and teamwork activities. • Incentive such as bonus marks to those students who are improving and participating effectively in the class.
4	Communication, Information Technology, Numerical		
	• The students will be able to use the internet for searching electronic journals regarding topics of their interest/study courses. • The students will be able to prepare and present subjects using different educational strategies (PowerPoint presentations, etc….) • The students will be able to develop the computer skills in preparing the presentations. • The students will be able to work as a teamwork. • The students will be able to develop the communication skills through interactive discussions during the seminars. • The students will be able to have familiar with the modern information technology such as the interment.	• Students are asked for delivering a summary regarding the topics related to the course. • Teaching the weak students again by giving them extra time who have problem in understanding. • Giving different types of questions for each student, enabling them to imply the rules and getting the result. • Asking the students to solve problems in the class by providing them the	• Clearing the methods and rules to solve the problems numerically. • Each log delivered by the students is objectively evaluated. • Asking the questions during discussion of the topics. • Highlighting the concepts and principles discussing through practical problems. • Asking the students to participate in evaluating their class-mates.

		guidance.	

5. Schedule of Assessment Tasks for Students During the Semester

No.	Assessment task	Week Due	Proportion of Total Assessment
1.	First Major Exam	7	15
2.	Homework assignments	During the Term	10
3.	Quizzes	During the Term	10
4.	Design Project	During the Term	10
5.	Second Major Exam	13	15
6.	Final Exam	16	40
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 one hour the students can consult the teacher individually or in a group for their difficulties in the subject. In all, the teaching staff is available for more than 8 hours per week for getting the academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
   - Mac Gregor, J.G., "Reinforced Concrete, Mechanics and Design", Prentice Hall, 1992.

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
   - Steven H. Kosmatka, "Design and Control of Concrete Mixture, Portland", Portland Cement Association.
   - Charles, G.S. and Chu-Kia W., "Reinforced Concrete Design", 5th Edition, Harper and Row, Pub., 1994.
   - El-Dakhakhni, W.M., "Modern of Reinforced Concrete", The Anglo Egyptian Bookshop, 1990.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
   - Selected papers, and video clips from U-tube and trustable web sites.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
   - Seeking software for design of reinforced concrete components such as SAP2000, STAAD; etc.

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

2. Computing 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) • Laboratory equipment is available for some tests. But raw materials (reinforcing steel, aggregate, and cement) are needed each semester. New testing apparatus is required to be purchased for concrete material and structural engineering labs.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 421

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Structural Steel Design 2 CE 421			
2. Credit hours: 3 (3,2,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Fall semester, Senior year			
6. Pre-requisites for this course (if any): CE 320			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	5
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	15
Comments: The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.			

B Objectives

1. What is the main purpose for this course?
   - To enable students to design compound beams, crane beams, all components of steel railway and highway bridges that safely and economically can resist the loads and satisfy their intended function

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.
   - Placing before the class mind provoking and thinking questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Compound Beams	1	5
Crane Beams	2	10
Purlins	1	5
Sheeting Rails	2	10
Exam 1	0.5	2
Plate Girders	1	5
Beam Columns	1	5
Slide Column for a Single Storey Industrial Building	2	10
Exam 2	0.5	2
Columns	1	5
Column Bases	1	5
Trusses	1	5
Final exam	1	5
Total	15	74

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	45	29				74
Credit	3	0				3

3.Additional private study/learning hours expected for students per week.
2-3 hours per week on an average for self-study and problem solving — 2-3

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 student will be able to design compound beams.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The student will be able to design plate girder or truss steel bridges.		
1.3	The student will be able to design crane beams.		
1.4	The student will be able to design industrial buildings		
2.0	Cognitive Skills		
2.1	Ability of Analyzing Compound Beams, Crane Beams, Purlins, Sheeting Rails, Plate Girders, Beam Columns, Slide Column for a Single Storey Industrial Building, Crane Columns, Column Bases, Trusses.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2			
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		

		situation.	effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	Developing the communication skills through interactive discussing during the seminar	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	20
2	Second exam	12	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Structural Design by Jack C. Mc Cormac, 3rd Edition Applied Structural Steel Design by Leonard Spiegel and George F. Limbrunner.
2. List Essential References Materials (Journals, Reports, etc.) 1-AISC Manual of Steel Construction. 2-Leonard Spiegel & Limbrunner, "Applied Structural Steel Design", 4th edition, Prentice Hall. 3-Negi L.S., "Design of Steel Structures", Tata McGraw Hill, (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) AISC Manual of Steel Construction
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or

regulations and software.

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

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment.
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 422

Course Specifications

Institution: Majmaah University		Date of Report	December 14, 2014
College/Department	Engineering/ Civil and Environmental Engineering		

A. Course Identification and General Information

1. Course title and code: Methods and Equipment of Construction CE 422			
2. Credit hours 2 (2, 1, 0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered	Spring semester, Senior year		
6. Pre-requisites for this course (if any) None			
7. Co-requisites for this course (if any) None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	70
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
e. Other	✓	What percentage?	10
Comments:			

B Objectives

1. What is the main purpose for this course?
   - To overview the construction industry in the Kingdom of Saudi-Arabia.
   - To perform optimized analysis of earthmoving machinery and operations.
   - To study the process of excavations and lifting.
   - To learn loading and hauling operations.
   - To study compacting and finishing operations.
   - To study concrete construction methods.
   - To study the concrete formwork design.
   - To learn the construction economics.
   - To understand the contract construction.

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)
   - Continuous updating of the information, knowledge and skills (new research or new knowledge obtained through use of references, books, magazines, internet; etc….).
   - Regular evaluation of the course contents.
   - Delivery of the course by practical examples and problems.
   - Explaining the applications through the illustrations.
   - Solving problems through assignments and tutorials on each topic.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Overview of the construction industry.	1	3
Earthmoving machinery and operations.	2, 3	6
Excavation and lifting.	4, 5	6
Loading and hauling.	6, 7	6
Compacting and finishing.	8, 9	6
Concrete construction.	10, 11	6
Concrete form design.	12, 13	6
Construction economics.	14	3
Contract construction.	15	3
Total	15	45

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

	Lecture	Tutorial	Laboratory	Practical:	Others:	Total
Contact Hours	30	15	-	-	-	45
Credit	2	-	-	-	-	2

3. Additional private study/learning hours expected for students per week.
   1-2 hours per week on an average for self-study and problem solving — 1 – 2 Hours

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	Knowledge		
	• The students will be able to create project designs and construction documents. • The students will be able to define the roles, relationships and responsibilities of the participants in the design and construction process. • The students will be able to recognize the role of construction engineer as a team member of a civil engineering project. • The students will be able to define the methods, materials, and techniques used in the design and construction of buildings and civil works. • The students will be able to demonstrate a working knowledge of safety, health, and environmental issues related to the construction activities.	• Lectures using PowerPoint presentations, use of smart board and projector. • To hear the students' problems about the course of study and solving them. • Distribution of handouts pertaining to the lectures.	• Oral feedback from the students. • Major and final exams. • Students class participation. • Lab reports. • Assignments/exercises for the applications that force the students to think and apply the gained knowledge.
2	Cognitive Skills		
	• The students will be able to prepare a topic related to the course of study and present it for the whole class. • The students will be able to solve the assignments given during the course of study. • The students will be able to think critically to solve the problems by giving the reasons for each problem solved. • The students will be able to use step by step procedure in solving the problems. • The students will be able to realize the importance of problem definition and solutions them using the alternatives.	• Explaining the principles and concepts through solving practical problems. • Asking the students to suggest a solution before giving them the correct answers. • Asking the students to explain the steps adopted in solution of the problems and ensure that they understand the problems. Conducting field	• Presentations given by the students. • Class participation by the students. • Students are required to deliver a summary of the given topics related to the course of study. • Asking the students to participate in an oral discussion during the class sessions. • Setting assignment problems or project statements applying the principles and concepts. • Setting of questions in the quizzes, and major exams force the students to think and apply the learnt concepts and

		visits to construction projects to explain the ideas and concepts to the students.	principles.
3	Interpersonal Skills & Responsibility		
	• Students are expected to develop teamwork activities. • They may be involved in communication ability with class-mates with confidence, listening and understanding the problem solving, decision making abilities. • Perceive as more calm, confident and charismatic, qualities that are often endearing or appealing to others. • Being more aware of interpersonal skills can help to improve their ability. • Help the student to solve the problem by asking questions during the office hours. Access to the faculty member by the student using, email, website and even phone calls in the urgency makes it more beneficial.	• Encourage students to engage themselves in communication use, appropriate questioning to develop understanding among each other. • In certain phases of the class, students should be given small individual tasks which make focusing on the topic. • Debates are useful to organize a topic.	• Homework and quizzes are always a good method to assess the educational growth of the students. • Working in group(s) such as in the laboratory or projects and teamwork activities. • Incentive such as bonus marks to those students who are improving and participating effectively in the class.
4	Communication, Information Technology, Numerical		
	• The students will be able to use the internet for searching electronic journals regarding topics of their interest/study courses. • The students will be able to prepare and present subjects using different educational strategies (PowerPoint presentations, etc….) • The students will be able to develop the computer skills in preparing the presentations. • The students will be able to work as teamwork. • The students will be able to develop the communication skills through interactive discussions during the seminars. • The students will be able to have familiar with the modern information technology such as the interment.	• Students are asked for delivering a summary regarding the topics related to the course. • Teaching the weak students again by giving them extra time who have problem in understanding. • Giving different types of questions for each student, enabling them to imply the rules and getting the result. • Asking the	• Clearing the methods and rules to solve the problems numerically. • Each log delivered by the students is objectively evaluated. • Asking the questions during discussion of the topics. • Highlighting the concepts and principles discussing through practical problems. • Asking the students to participate in evaluating their class-mates.

		students to solve problems in the class by providing them the guidance.	

5. Schedule of Assessment Tasks for Students During the Semester			
No.	Assessment task	Week Due	Proportion of Total Assessment
1.	First Major Exam	7	15
2.	Homework assignments	During the Term	10
3.	Quizzes	During the Term	10
4.	Design Project	During the Term	10
5.	Second Major Exam	13	15
6.	Final Exam	16	40
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 one hour the students can consult the teacher individually or in a group for their difficulties in the subject. In all, the teaching staff is available for more than 8 hours per week for getting the academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
   - S.W. Nunnally Phillips C., “Construction Methods and Management”, Prentice-Hall, (Latest edition).

2. List Essential References Materials (Journals, Reports, etc.)

3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
   - R.L. Peurifoy and W.B. Ledbetter, "Construction Planning, equipment and Methods", McGraw –Hill.

4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.)
   - Selected Papers, and video clips from U-tube and trustable web sites.

5. Other learning material such as computer-based programs/CD, professional standards or regulations and software.
   - CYCLONE is one of the software that can be used to design the construction process.

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

2. Computing 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) • Laboratory equipment is available for some tests. But raw materials (reinforcing steel, aggregate, and cement) are needed each semester. New testing apparatus is required to be purchased for concrete material and structural engineering labs.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment.
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 423

Course Specifications

Institution: Majmaah University	Date of Report: 1/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Contracts & Specifications CE 423			
2. Credit hours: 2 (2,1,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester, Senior year			
6. Pre-requisites for this course (if any): None			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus:			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	100
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-
Comments: The course involves Lectures and exercises parts, teaching these two parts depends on explaining, reports, home works and assignments.			

B Objectives

1. What is the main purpose for this course?
   - To have the knowledge of engineering public works in general and special conditions.
   - To be familiar with tenders and its different types as well as how to call and evaluate it.
   - To know how to deal with Claims, Disputes and Arbitration.
   - To carry out rate analysis and its depreciation.
   - To have the concept of engineering ethics.
   - To have knowledge of specifications of building materials as per codes provisions.
   - To study quantities surveying of civil engineering projects.

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)
   - Course delivery by citing real life examples and problems
   - Emphasis on understanding concepts and illustrating applications to problems
   - Solving problems through assignment on each topic
   - Background materials from the books are provided
   - Extensive interaction with students

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Legal aspects of engineering public works, general and special conditions	3	9
Tenders, different types of tenders, estimation of rates	2	6
Claims, disputes and arbitration	1	3
Exam 1	0.5	2
Engineering Ethics	1	3
Specification of construction materials according to different standards	2	6
Quantity surveying for civil engineering works, rate analysis	1	3
Exam 2	0.5	2
Quantity surveying for civil engineering works, rate analysis	3	9
Final Exam	1	2
Total	15	45

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	15	0	-	-	45
Credit	2	0	0	-	-	2

3. Additional private study/learning hours expected for students per week. 3-4 hours per week on an average for self-study and problem solving	3-4

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	Have the knowledge of legal aspects of engineering public works in general and special conditions.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Be familiar with tenders and know how to call and evaluate.		
1.3	Be able to deal with Claims, Disputes and Arbitration		
1.4	Have the concept of engineering ethics.		
1.5	Have knowledge of specifications of building materials.		
1.6	Study quantities surveying of civil engineering projects.		
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final tests which will force the student to think and apply concepts and principles learnt.
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		
2.5			
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem	- Solve the problems by	• Group work in

	by asking questions during the office hours.	asking sequential questions.	laboratory work and team activity.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.	- Paying personal attention to each student and caring about his situation.	• Bonus marks to those who are improving and participating effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		• Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	15
2	Second exam	12	15
3	Quiz, Exorcise questions and participation		10
4	Homework, Report, Project and assignments		10
5	Tutorials		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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks R. H. Cloug & G. A. Sears, "Construction Contracting", 6th edition.
2. List Essential References Materials (Journals, Reports, etc.) • Charles S. Phillips, "Construction Contract Administration", 1999. • Charborty,"Estimating and Costing Specifications & Valuation", (Latest edition). • Macmiian, "Hand book of Construction Management", (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking quantities surveying software's.

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.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need to add some instruments to the structural analysis lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment.
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision.

- A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment.
- Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 424

Course Specifications

Institution: College of Engineering	Date of Report: 10/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Contracts & Specifications CE 424
2. Credit hours: 3 (3,1,0)
3. Program(s) in which the course is offered. Civil Engineering
4. Name of faculty member responsible for the course
5. Level/year at which this course is offered: Spring semester, Senior year
6. Pre-requisites for this course (if any): CE 419
7. Co-requisites for this course (if any): None
8. Location if not on main campus:
9. Mode of Instruction (mark all that apply)

a. Traditional classroom	✓	What percentage?	100
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	-	What percentage?	-
d. Correspondence	-	What percentage?	-
f. Other	-	What percentage?	-

Comments:
The course involves Lectures and exercises parts, teaching these two parts depends on explaining, reports, home works and assignments

B Objectives

1. What is the main purpose for this course?

- Drawing and reading the architectural drawings including plans, views and sections (axis definition, walls, doors, windows and other notations).
- Preparing structural drawings of basement floor, repeated floor and final floor:
  a- Beams and slabs sheets (dimensions and reinforcement).
  b- Columns and axis sheets (dimensions and reinforcement).
  c- Foundations sheet (dimensions and reinforcement).
  d- Ladders sheet (dimensions and reinforcement).
  e- Plumping sheet (water supply and waste water drainage).
  f- Electrical sheet.
- Building laws and acts, municipalities' requirements.
- Reading the soil mechanics report.
- Cost estimating of engineering projects.
- Dealing with insulation materials in building construction.

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)

- Course delivery by citing real life examples and problems
- Emphasis on understanding concepts and illustrating applications to problems
- Solving problems through assignment on each topic
- Background materials from the books are provided
- Extensive interaction with students

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Building structures, main buildings elements, engineering drawings required in design and implementation stages.	4	16
Reading and analyzing architectural drawings.	2	8
Major-I	0.5	2
Reviewing studies and research work about engineering projects such as economic studies, soil and water research, etc.	4	16
Major-II	0.5	2
Studying some building elements as ladders, beams	1	4
Insulation materials in buildings.	2	8
Final Exam	1	4
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

1. Additional private study/learning hours expected for students per week.
   3-4 hours per week on an average for self-study and problem solving — 3-4

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	Read architectural drawings in fine details enabling him to translate it to actual construction.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Understand the intricacies of construction of typical elements in buildings.		
1.3	To become familiar with building laws and acts, and municipalities requirements		
1.4	Understand how to read the soil mechanics report.		
1.5	Be able to apply different methods of cost estimating in civil engineering projects.		
1.6	Be able to deal with insulation materials.		
2.0	Cognitive Skills		
2.1	Explaining fundamentals with live / day to day problems	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final tests which will force the student to think and apply concepts and principles learnt.
2.2	Problems solving – Sample problems and exercise problems		
2.3	Interactive problem solving through well define, planned and searching questions		
2.4	Assignment problems for applications		
2.5			
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the	- Solve the problems by	• Group work in

	problem by asking questions during the office hours.	asking sequential questions.	laboratory work and team activity.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.	- Paying personal attention to each student and caring about his situation.	• Bonus marks to those who are improving and participating effectively in the class.
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		• Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.
5.0	Psychomotor		
5.1	Questioning the students on solving the problem in a reverse manner.	- Make the class attractive and full of activations by raising questions and discussions that requires straight thinking and also reverse thinking.	• Questioning

5. Schedule of Assessment Tasks for Students During the Semester

	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	15
2	Second exam	12	15
3	Quiz, Exercise questions and participation		10
4	Homework, Report, Project and assignments		10
5	Tutorials		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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Francis D.K. Ching, "Building Construction Illustrated", John Willy & Sons, (Latest edition).
2. List Essential References Materials (Journals, Reports, etc.) Merritt, F.S., Rickatts, J.T., "Building Design and Construction Handbook", McGraw- Hill, (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking building construction software's.

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.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need to add some instruments to the structural analysis lab.

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. Still we depend on the evaluation of previous semesters. However, I intend to do assessment at the middle of each semester.
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 of at the mid-semester after assessment of M-1 answer papers. - Group discussion and using different ways in teaching (white board, seminars, PowerPoint, reading, conducting lab 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 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.

CE 425

Course Specifications

Institution: Majmaah University	Date of Report: 14/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Computer applications in structural engineering CE 425			
2. Credit hours: 2 (1,0,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Fall semester ,Senior year			
6. Pre-requisites for this course (if any): CEN 209			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus Majmaah University Old Building			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	20
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	-
Comments: The course involves direct applications in computer Laboratory, home works and assignments.			

B Objectives

1. What is the main purpose for this course?
   - Development of computer skills related to the field of civil engineering.
   - Hands-on experience in the use one of CAD software packages for geometric modelling, and Drafting (Autocad 2010, ArchiCAD, DraftSight etc.).
   - To develop skill to use software to create 2D models.
   - Learn to solve civil engineering problems using civil engineering and office software (Sap2000, Robot, Graitec, Microsoft Office 2010, etc…).
   - Learn principles of programming for solving of engineering problems.

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)
   - Continuous updating of the knowledge and skills through using references, books, internet, Regular evaluation of the course contents.
   - Delivery of the course by practical examples and problems.
   - Explaining the applications through illustrations and videos.
   - Solving problems through assignments and tutorials on each topic.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Introduction to MS office suite	3	9
First Major exam	0.5	1
Introduction to Computer aided drafting using AutoCAD 2010	6	18
Second major exam	0.5	1
Analysis and design of structural systems using SAP2000	4	12
Final exam	1	2
Total	15	45

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

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	15	0	30			45
Credit	1	0	1			2

4. Additional private study/learning hours expected for students per week.
   3-4 hours per week on an average for self-study and problem solving — 3-4

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	Learn to build Microsoft Office suite.	– Lectures using PowerPoint presentations, use of smart board and the projector. – To hear the students' problems about the course of study and solving it. – Handouts pertaining to the lectures.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Lab reports and discussions. • Class participation • Assignment/exercise/tutorial problems for the applications
1.2	Ability to assist in planning, designing, supervising, and constructing civil engineering projects.		
1.3	Analyze civil engineering data from existing graphics, reports, and other documents.		
1.4	Ability for structural details using AutoCAD software.		
1.5	Ability to model and analyze structural systems using civil engineering software's.		
2.0	Cognitive Skills		
2.1	Each student is expected to prepare a topic related to the course and present it for the whole class.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 and quizzes so that students can apply the knowledge gained.	• 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 cessions. • Questions in Quiz, Major and Final exams which will force the student to think and apply concepts and principles learnt. • Setting assignment problems or project statements applying the principles and concepts.
2.2	Frequent assignments are given during the course of study.		
2.3	Critical thinking through solving the problems and giving the reasons for each problem solved.		
2.4	Using step by step approach in solving the problems.		
2.5	The importance of problem definition and solutions using the alternatives.		
3.0	Interpersonal Skills & Responsibility		
3.1	Students are expected to develop teamwork activities.	- Solve the problems	• Homework and quizzes are

3.2	They are involved in communication ability with class-mates with confidence, listening and understanding the problem solving, decision making abilities.	by asking sequential questions. - Paying personal attention to each student and caring about his situation. - Encourage students to engage themselves in communication use, appropriate questioning to - In certain phases of the class, students should be given small individual tasks which make focusing on the topic. - Debates are useful to organize a topic.	always a good method to assess the educational growth of the students. • Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.3	Perceive as more calm, confident and charismatic, qualities that are often endearing or appealing to others.		
3.4	Being more aware of interpersonal skills can help to improve their ability.		
3.5	Help the student to solve the problem by asking questions during the office hours.		
3.6	Access to the faculty member by the student using, email, website and even phone calls in the urgency makes it more beneficial.		
4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him. - Teaching weak students again by giving them extra time. - Giving different types of questions for each student, enabling them to imply the rules and getting the result.	• Discussion, Questioning during topics. • Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their class-mates. • Each log delivered by the students is objectively evaluated. • Clearing the methods and rules to solve the problems
4.2	Developing the communication skills through interactive discussing during the seminar		
4.3	Students have to be familiar with using the modern information technology such as interment, and smart board.		
4.5	Encourage students to use internet for searching educational resources regarding topics of their interest.		
4.6	Working as teamwork.		

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First exam	7	20
2	Second exam	12	20
3	Quizzes, Report, and homework assignments	During the Term	10
4	Lab Exam	During the Term	10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks Munir Hamad: "Autocad® 2010 Essentials", Jones & Bartlett Learning, 2009.
2. List Essential References Materials (Journals, Reports, etc.) NA
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) - Tutorials from http://www.tutorialspoint.com/ms_excel_2010/excel_getting_started.htm. - Computers and Structures, Inc.: "SAP2000 Integrated Finite Elements Analysis and Design of Structures, TUTORIAL MANUAL", Version 6.1, September 1997.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. Seeking computer application in structural design and analysis software's.

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 should be available for one course in order to avoid the wastage of time occurring due to the movement of students.
2. Computing 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.
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) Laboratory equipment are available for some tests. But we need raw materials (soil samples) each semester, also to add some instruments to the Soil Mechanics lab.

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are

gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CE 428

Course Specifications

Institution: Majmaah University	Date of Report: 5/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Bridges Design CE 428			
2. Credit hours: 3 (3,1,0)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester, Senior year			
2. 6. Pre-requisites for this course (if any):			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	10
d. Correspondence	-	What percentage?	-
f. Other	✓	What percentage?	10
Comments: The course involves exercises and laboratory parts, teaching these two parts depends on explaining, reports, home works and assignments.			

B Objectives

1. What is the main purpose for this course?
   - To introducing concepts of bridge designing.
   - Study all the types of bridges and their characteristics.
   - Study the loads on bridges as per codal provisions.
   - Study the design of different elements of bridges including substructures design as per codal provisions.

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)
   - Course delivery by citing real life examples and problems.
   - Emphasis on understanding concepts and illustrating applications to problems.
   - Solving problems through assignments and tutorials on each topic.
   - Written notes are provided, in addition to reference and PowerPoint presentations.
   - Emphasis in classroom is on understanding concepts.
   - Placing before the class mind provoking and thinking questions.

C. Course Description

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
Types of bridges	2	8
Loads on bridges	1	4
Analysis and design of reinforced: concrete slab and girder type bridges	3	12
Exam 1	0.5	2
Precast prestressed concrete bridge	2	8
Metallic bridges	2	8
Exam 2	0.5	2
Substructure design	2	8
Construction details	1	4
Final exam	1	4
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. 2-3
   2-3 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 student will be able to identify the different types of bridges and the usage of each type under different circumstances.	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	The student will be able to evaluate loads on bridges as per codal provisions.		
1.3	The student will be able to design different bridge elements as per codal provisions		
1.4	The student will be able to design of substructures elements.		
2.0	Cognitive Skills		
2.1	Ability of Analyzing and design superstructure and substructure of bridges elements.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• 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, Major and Final tests which will force the student to think and apply concepts and principles learnt.
3.0	Interpersonal Skills & Responsibility		
3.1	Help the student to solve the problem by asking questions during the office hours.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Different access to the student to be close with the teacher using, email, website and even phone calls in urgent.		

4.0	Communication, Information Technology, Numerical		
4.1	Developing the computer skills in preparing presentation.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the seminar		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	First major exam	7	20
2	Second exam	12	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	16	40
6	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 on a one to one basis for academic advice. In all, teaching staff is available for more than 7 hours per week for academic advice beyond lectures and tutorials.

E. Learning Resources

1. List Required Textbooks
1-Design of Highway Bridges - Barker & Pickutt
2- Design of Modern Highway Bridges,Taly

2. List Essential References Materials (Journals, Reports, etc.)
1-Vector, D.J., "Textbook of Bridge Engineering", (Latest edition).
2-Sehgal, S.E., and Bhanot, K.L., "A Textbook on Highway Engineering and Airports", S. Chand & Co. (Latest edition).
3-Khanna, S.K., and Justo, C.E.G., "Highway Engineering", Nemchand Bros, (Latest edition).
4- Kadiyali, L.R., "Principles and Practice of Highway Engineering", Khann Tech Publications, (Latest edition).
5- Khanna and Justo, "Highway Material Testing", Nemchand Bros, (Latest edition).
6- Phatak, D.R., "Bridge Engineering", Satya Prakashan, (Latest edition).
7- Oglesby and Hicks, "Highway Engineering". (Latest edition).

8- Ponnuswamy, "Bridge Engineering", Tata McGraw Hill, (Latest edition).
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc)
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) Selected Papers, and video clips from U-tube and trustable web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. (Any software to be included LEAP,SAP ,..)

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.
2. Computing resources (AV, data show, Smart Board, software, etc.) Data show
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list)

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure student behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment.
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.

CEN 209

Course Specifications

Institution: Majmaah University	Date of Report: 14/12/2014
College/Department : Engineering/ Civil and Environmental Engineering	

A. Course Identification and General Information

1. Course title and code: Computer Programming for Civil Engineering CEN 209			
2. Credit hours: 3(2,0,2)			
3. Program(s) in which the course is offered. Civil Engineering			
4. Name of faculty member responsible for the course			
5. Level/year at which this course is offered: Spring semester ,sophomore year			
6. Pre-requisites for this course (if any):			
7. Co-requisites for this course (if any): None			
8. Location if not on main campus			
9. Mode of Instruction (mark all that apply)			
a. Traditional classroom	✓	What percentage?	80
b. Blended (traditional and online)	-	What percentage?	-
c. e-learning	✓	What percentage?	10
d. Correspondence	✓	What percentage?	10
f. Other	-	What percentage?	-
Comments: The course involves assignments and hand on practice exercises during laboratory work.			

B Objectives

1. What is the main purpose for this course? • To develop the algorithm and to write the flowchart of an engineering problems. • To learn the programming language and development of programs for specific problems by enhancing the problem seeking and solving skills. • To understand the fundamentals of computer programming code and learn various programming languages based on the gained knowledge. • To develop programs which can be coupled with various numerical models or other programming language programs.
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) • Students must improve their English communication and writing skills. • Student must know the importance of the programming skills. • Students must have to develop a detailed scientific program which can solve the civil engineering problems by using the Input variables for specific process/design.

C. Course Description

1. Topics to be Covered		
List of Topics	No. of Weeks	Contact Hours
Introduction to FORTRAN Language - Basic Elements, Declarations,	2	8
Variables Identifiers, Data Types, Input Output Statements, Assignment Operator, Arithmetic Operations, Mathematical Intrinsic functions	2	8
Program development process (Understand the Problem, Create the Algorithm, Develop the Program, Test/Debug the Program for compiler, logical & runtime errors) with practical examples	2	8
Practical Programs For Variables Definition and Arithmetic Operators	1	4
Relational & Logical Operation, Conditional Statements, Selection Statements (IF, IF THEN, IF THEN ELSE, IF THEN ELSE IF, SELECT CASE)	3	12
Loops Statements, Nested Loops, Counter Controlled Looping (CYCLE, EXIT), Conditional Controlled Looping (While, Do While)	2	8
Single Dimension Arrays Program development	1	4
Formatted Input/Output (Integer, real, character Format Specifier, File Operations	1	4
Subroutines program development	1	4
Total	15	60

2. Course components (total contact hours and credits per semester):						
	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	30	0	30			60
Credit	2	0	1			3

3. Additional private study/learning hours expected for students per week. 2-3 hours per week on an average for self-study and problem solving	2-3

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	Understanding of the basic programming skills, data types and their uses	– 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.	• Regularly asking questions on different topics and concepts. • Major and End-semester tests that will force the student to think and apply the knowledge. • Reports and discussions.
1.2	Understand the Problem at first and then Create the Algorithm to help in development of the Program		
1.3	How to Test/Debug the Program for compiler by having knowledge of logical & runtime errors		
1.4	Knowledge of transforming the actual problem into the form of programming language.		
1.5	Clear understanding of algebraic or trigonometric functions to use them in programs.		
2.0	Cognitive Skills		
2.1	The student can develop any civil engineering project with the use of computer programming skills.	- 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 to students to suggest a solution before giving them the correct answer. - Asking the students to explain the steps adopted in the problem and ensures that they understand the problem. - Asking searching questions on topic fundamentals. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge	• 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, Major and Final exams which will force the student to think and apply concepts and principles learnt.
2.2	The students can understand easily the programming codes of different numerical models.		
2.3	The student can find the results of dynamical/physical process of various engineering fields.		
2.4	The students can develop basic modules to couple with the other programs to dump the results in readable format.		

		gained.	
3.0	Interpersonal Skills & Responsibility		
3.1	The students would be able to utilize diversely the knowledge of computer programming skills in order to deal with complex projects swiftly.	- Solve the problems by asking sequential questions. - Paying personal attention to each student and caring about his situation.	• Group work in laboratory work and team activity. • Bonus marks to those who are improving and participating effectively in the class.
3.2	Programming Codes would be easily understood by the students related to various fields.		
4.0	Communication, Information Technology, Numerical		
4.1	The ability of student to join a teamwork for development of computer programming projects/modules.	- Asking students to solve problems in the class by guiding him.	• Discussion, Questioning during topics.
4.2	Developing the communication skills through interactive discussing during the lectures.		• Highlighting the concepts and principles through real life problems • Asking the students to solve the numerical part and check that the answers are tallying with notes. • Asking the students to participate in evaluating their mates.

5. Schedule of Assessment Tasks for Students During the Semester			
	Assessment task	Week Due	Proportion of Total Assessment
1	Lab, Quiz and homework assignments	-	20%
2	First major exam	7	20%
3	Second exam	13	20%
4	Final Exam	16	40%
	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 on a one to one basis for academic advice.

E. Learning Resources

1. List Required Textbooks • Fortran 95/2003 for Scientists & Engineers by Stephen Chapman, McGraw-Hill Science/Engineering/Math; 3rd Edition
2. List Essential References Materials (Journals, Reports, etc.)

• Various tutorials based websites
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc) Fortran 90/95 for Scientists & Engineers by Stephen Chapman, McGraw-Hill Science/Engineering/Math, 2nd Edition.
4. List Electronic Materials (eg. Web Sites, Social Media, Blackboard, etc.) • Trustable blogs/web sites.
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. • None

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.) Classroom, Computer laboratory
2. Computing resources (AV, data show, Smart Board, software, etc.) • None
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) • None

G. Course Evaluation and Improvement Processes

1. Strategies for Obtaining Student Feedback on Effectiveness of Teaching • Completion course evaluation questionnaire, • Classroom observations to measure Student Behavior through how well the student groups are interacting in-class activity and how well the in-class activity went.
2. Other Strategies for Evaluation of Teaching by the Program/Department Instructor • Faculty Peer Assessment
3. Processes for Improvement of Teaching • Plan: The instructor will develop a strategy for teaching. • Do: The strategy will be implemented for one semester. • Study: The experiences of the students will be collected through a survey. • Act: Effective teaching strategies will be implemented and revised as more experiences are gained.
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) • Check marking of a sample of examination papers.
5. Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. • Continuous improvement is a circular process, encompassing student assessment, course planning and design, implementation, evaluation, and revision. • A feedback from all relevant assessment tools must be considered in the continuous process of course objectives refinement and assessment. • Continuous process for reviewing feedback from student on the quality of the course and planning for improvement.