جامعة المجمعة
Majmaah University

Course Specifications

Muharram 1437 H

Institution:	Majmaah University.
Academic Department :	Civil and Environmental Engineering
Programme :	Civil Engineering
Course :	Highway and Traffic Engineering
Course Coordinator :	Dr.Yassir Elaraki
Programme Coordinator :	Dr. Sameh S Ahmed
Course Specification Approved Date :	10/ 5/ 1437 H

This form compatible with NCAAA 2013 Edition

A. Course Identification and General Information

1 - Course title :	Highway and Traffic Engineering	Course Code:	CE 380
2. Credit hours :	**3(3,1,0)**		
3 - Program(s) in which the course is offered:	Civil Engineering		
4 – Course Language :	English		
5 - Name of faculty member responsible for the course:	Dr.Yassir Elaraki		
6 - Level/year at which this course is offered :	Level 7, 4th Year		
7 - Pre-requisites for this course (if any) :	CE 370		
8 - Co-requisites for this course (if any) :	NA		
9 - Location if not on main campus:	Al-Yahiya Building- Majmaah		

10 - Mode of Instruction (mark all that apply)

A - Traditional classroom	√	What percentage?	**80 %**
B - Blended (traditional and online)	-	What percentage?	-
D - e-learning	-	What percentage?	-
E - Correspondence	-	What percentage?	-
F - Other	√	What percentage?	**20 %**

Comments :

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B Objectives

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.

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

- 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 power point 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
Midterm 1	0.5	2
Intersections	1	4
Highway materials characterization	1	4
Bituminous mixtures design and flexible pavement design	1	4
Highway drainage	1	4
Midterm-II	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	1	4
Review before 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	-	-	-	60
Credit	3	0	-	-	-	3

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

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	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. • Midterm 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	- Assignment problems, Exercise / tutorial problems for applications that will force the students to think and apply the knowledge gained. - Setting M-1 and M-2 + quizzes and mini projects so that students can apply the knowledge gained.	• Quizzes and Exams. • Setting assignment problems or mini project which will apply principles and concepts. • Questions in Quiz, Midterm and End semester tests 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		

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
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.	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
5.0	**Psychomotor : N/A**		

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

	Assessment task	Week Due	Proportion of Total Assessment
1	First midterm exam	7	20
2	Second exam	12	20
3	Quizzes		10
4	Report, and homework assignments		10
5	Final Exam	15	40
6	**Total**		**100**

D. Student Academic Counseling and Support

Every day one hour is marked as Office Hour in the Time Table of teaching staff. During this hour the students can consult the teacher individually 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 :**

- 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 :

4. List Electronic Materials :

5. Other learning material :

- 3D civil software (to be included in course).

F. Facilities Required

1. Accommodation

- 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

3. Other resources

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.

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

- 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.

Course Specification Approved
Department Official Meeting No (11) Date 10 / 05 / 1437 *H*

Course Coordinator		Department Head	
Name :	**Dr. Yassir Elaraki**	***Name :***	Dr. Abdullah AlShehri
Signature :	Yassir	***Signature :***	AlShehri
Date :	08/ 05 / 1437 *H*	***Date :***	10/ 05 / 1437 *H*