Zarqa University

Faculty of Engineering
Department: Civil Engineering
Course title: Traffic Engineering

Prerequisite: Highway Engineering
Instructor: Dr. Mohammad Abdelkarim Abojaradeh
Lecture's time: S, T, Th, 1:00-2:00
Semester: Second, 2017.
Office Hours: S, T, Th 11 -1 PM

Course description:

The course covers Fundamental principles of traffic flow: Traffic flow elements, Flow-Density relationships. Traffic engineering studies: Spot speed studies, Volume studies, Travel time and delay studies, parking studies. Intersection control: Types of intersection control, Signal timing for different colors. Capacity and level of service of two lane highways, multilane highways, and freeway segments. Capacity and level of service at signalized intersections. Traffic safety.

The course includes five main parts:

1- Fundamentals principles of traffic flow
2- Traffic engineering studies
3- Intersections control
4- Capacity and level of service for highway segments and at signalized intersections
5- Highway traffic safety

Aims of the course:

This course will provide students with an understanding of the basic principles and fundamentals in traffic engineering.

The main objectives of this course are the following:

1. Study the basics and fundamentals of traffic flow
2. Apply basics information in traffic engineering studies
3. Use engineering concepts to solve basic traffic engineering problems
4. Apply principles of statistics to traffic flow and traffic studies
5. Apply basic principles of level of service and capacity analysis of different types of highways and intersections
6. Apply basic principles of intersection control types and signalized system
7. Describe traffic safety objectives and principles
8. Develop presentation skills and team work through individual and group projects.

Intended Learning Outcomes (ILOs):

1. Ability in understanding Characteristics of the Driver, Pedestrian, Vehicle and Roadway
2. Ability in understanding Fundamentals of Traffic Flow.
3. Ability in applying principles of Traffic Engineering Studies.
4. Ability in applying basic principles of intersection control types and signalized system.
5. Ability in applying basic principles of level of service and capacity analysis of different types of highways and intersections.
6. Ability in applying principles of traffic and highway safety

Course structures:

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
Week 1		1	Introduction to the course: Characteristics of the Driver, the Pedestrians, the Vehicle, the Roadway Chapter 3	PPT. lecture	
Week 2-4		2	Fundamental Principles of Traffic Flow Chapter 6	PPT. lecture	**Ass.#1**
Week 5-6		3	Traffic Engineering Studies Chapter 4 **Exam I (up to end of week 6)**	PPT. lecture	
Week 7-8		4	Intersection Control Chapter 8	PPT. lecture	**Ass.#2**
Week 8-9		4	Capacity and Level of Service at Signalized Intersections Chapter 10 **Exam II (up to end of week 7)**	PPT. lecture	**Ass.# 3**
Week 10-12		5	Capacity and Level of Service of Two Lane Highways, Multi lane Highways, and Freeways Chapter 9	PPT. lecture	**Ass.#4**
Week 13		6	Traffic safety Chapter 5	PPT. lecture	
Week 14-16			Project Presentation, Review, Final Exam	PPT. lecture	Final project Final Exam

References:

Textbook: Traffic & Highway Engineering by Nicholas J. Garber and Lester A. Hoel 4th Edition, 2009

1- Traffic Engineering (4th Edition) by Roger P. Roess, Elena S. Prassas and William R. McShane (Jul 4, 2010)
2- Introduction to Traffic Engineering: A Manual for Data Collection and Analysis by Thomas R. Currin (Jan 19, 2001)
3- Principles of Highway Engineering and Traffic Analysis by Fred L. Mannering, Scott S. Washburn and Walter P. Kilareski (Sep 9, 2008)
4- Highway Capacity Manual 2010 by TRB Publications (2010)
5- Manual on Uniform Traffic Control Devices 2009 by Federal Highway Administration (Feb 2010)
6-Transportation Engineering and Planning By C.S. Papacostas, P.D. Prevedouros , Prentice Hall, (2010)

Assessment Methods:

Methods	Grade	Date
Assignments	5	monthly
Project	5	term
First Exam	20	6/4/2017
Second Exam	20	16/5/2017
Final Exam	50	