

Zarqa University

Faculty of Engineering Technology

Department: Civil Engineering

Course title:

Highway Engineering “ 902471 “



Prerequisite: 0902112 + 0902361

Instructor: Dr Imad AL-Shalout

Lecture's time: S. T. THz 9-10

Semester: Second

Office Hours: S , T , THz , from 10-11

12- 13

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### Course description:

This course will cover the concepts of Characteristics of the vehicle, the Driver, The Pedestrian and the Road. Sight Distance. Stopping Sight Distance , Passing Sight Distance . Location, Geometric, and Highway Surveys and Location. Highway Survey Methods. Computing Earthwork Volumes. Geometric Design For Highway Facilities. Factors Influencing Highway Design. Highway Design Standards. “Design Speed, Design Vehicle, Design Hourly Volume. Cross- section Elements .Design of the Alignment and Curves. Length of crest and sag vertical curves. Design of horizontal alignment and Curves. Simple curve, compound Curves Transition Curves, Reverse Curves. Special Facilities for Heavy Vehicles on steep grades lambing Lanes , Emergency Escape Ramps , Bicycle Facilities , Parking Facilities , Intersection .

### Aims of the course:

- 1 - Explain The Characteristics of The Drivers, Pedestrians Vehicles and Roads.
- 2 - Explain The Stopping Sight distance.
- 3 - Design The Sight Distance.
- 4 - Explain The Geometric design of the alignment of the Highway.
- 5 - Design The Stopping, Passing, and The Sight Distance of The Road.
- 6 - Explain Factors Influencing Highway Design.
- 7 - Design of Vertical Curves “ Crest and Sag “
- 8 - Design of Horizontal Curves.
- 9 - Explain Facilities of Heavy Vehicles.
- 10 - Explain Intersection Design.

### Intended Learning Outcomes (ILOs):

- (a) An ability to apply knowledge of Characteristics of Vehicle, Driver Pedestrian and roads.
- (b) An ability to identify, formulate and design Vertical curves Horizontal curves.
- (c) An Ability to apply Knowledge of parking, intersection, layout of Highway “vertical and Horizontal Alignment and curves.



**Course structures:**

Week	C. Hrs	ILOs	Topics	Teaching Procedure	Assessment methods
1-	2	1	Characteristics of The Driver , Pedestrian , Roads and Vehicles	Ch. 3.	
2-	2	1	Driver Characteristics	Ch. 3.1-2	
3-	1	1	Pedestrian Characteristics	Ch. 3.3	
4-	3	2	Vehicle Characteristics	Ch. 3.4	
5-	1	2	Road Characteristics	Ch. 3.7	
6-	3	3	Highway Surveys and location	Ch . 14.1-2	
7-	3	4	Highway Earthwork	Ch. 14.3	
8-	3	5	Geometric design of highway Facilities	Ch. 15.1	
9-	5	6	Design of Vertical alignment	Ch. 15.2	
10-	5	7	Design of horizontal alignment	15.2-3	
11-	3	8	Special Facilities for Heavy Vehicles on steep Grade	15.3	
12-	3	9	Parking Facilities	Ch. 15.5	
13-	5	10	Intersection Design	Ch. 7	

**References:**

**Traffic and highway engineering . 5 th Edition by Garber , Loster Hoel**

**Assessment Methods:**

Methods	Grade	Date
Test 1	20	6-4-2017
Test 2	20	18-5-2017
Assignment and Quizzes	10	
Final Exam	50	

