Highway Capacity Analysis

Course Name	Course type (credit/hours)	전필(3/3)	Course code	E017
	Target students Division/major/grade	환경건설교통공학부/3학년	Openning semester	2019 1ST SEMESTER
	Class time and classroom	월D(팔211) 목D(팔211)(팔211)	English Grade	A(100%English)
Reference to this course	Prerequisite courses	Introduction of Traffic Operations, Traffic Studies		
	Related basic courses	Traffic Flow Theory		
	Recommanded concurrent courses			
	Related advanced courses	Traffic Control		

Instructor	Name (title/division)	윤일수 (부교수/공과대학 교통시스템공학과)				
	Office Room Number	팔달관 512	Office phone Number	3610	e-mail	
	Office hours	Wednesday 9:00-16:00	Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number	1867	e-mail	gkfla0731@ajou.ac.kr

1. Introduction

This class was initiated to introduce the highway capacity analysis, which is the most important concept and fundamental methodology for designing, planning and operating traffic facilities. In details, highway capacity analysis may be divided into two categories in general; (1) uninterrupted traffic flow facilities, including freeway facilities, two-lane highways, multilane highways, and (2) interrupted traffic flow facilities, including urban streets, signalized intersections, unsignalized intersections, and so on. The course works will focus on identifying the elements effecting capacities for each facility and understanding the appropriate methodology to analyze the capacity in a systematic way. Through the course works, students will obtain ability required for designing, planning and operating vaious surface transportation facilities.

2. Course Objectives

Through this class, students are;

To understand basic concept on the capacity analysis for various transportation facilities,
To identify essential elements influencing the capacity of each transportation facility,
To acquire the appropriate methodology to analyze the capacity of each transportation facility, and
To obtain abilities to design, plan and operate various transportation facilities.

3. Class types and activities

강의는 1주일에 두번 진행되며, 주로 파워포인트 및 실습을 혼용하는 강의 위주로 진행됨. 학생들의 적극적인 참여가 요망되며 강제적인 참여는 없음. 출석은 매 강의시 체크하나 첫 두주는 포함되지 않음. 그리고 시험기간에는 수업이 없음.

4. Teaching Method

☑	lecture	☑	discussion and debate
☐	team project(presentation and case studies)	☐	experiments(role-playing,etc)
☐	designing and production	☐	on-site learning(on-site training)
☐	others		

5. Support Systems in Use

☑	e-class	☐	automatic recording system	☐	web-based assignment
☐	cyber lecture	☐	blended learning(combination of online and offline teaching)		
☐	class behavior analyazing system	☐	others		

6. Teaching Tools

☑	PBL(Problem Based Learning)	☐	CBL(Case Based Learning)
☐	TBL(Team Based Learning)	☐	others

7. Knowledge and ability required for taking this course

All students are required to understand basic concepts and terminologies related with traffic engineering and traffic flow analysis in advance. Students will use appropriate software like Highway Capacity Software to conduct actual traffic capacity analyses.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10%	
midterm exam	1or2	30%	
final exam	1	40%	
quiz			
presentation			
discussion			
homework	Homework	20%	Including pop quizzes
etc			
study hours			

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Sub	US HCM	TRB		2010
Main	Korean HCM	MOLIT		2013

10. Class system and Class shedule

The course works will be conducted based on the following four steps;
Step 1: Explanation on basic concepts, usages, and examples,
Step 2: Explanation on the methodology for capacity analysis for each facility,
Step 3: Practices using examples and homework, and
Step 4: Questions and answers, feedback to the subject step, if necessary.

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Basic concepts for capacity	E	윤일수	Presentation		
2	Basic freeway segments	E	윤일수	Presentation		
3	Freeway weaving	E	윤일수	Presentation		
4	Ramps and ramp junctions	E	윤일수	Presentation		
5	Multilane highways	E	윤일수	Presentation		

< Class Schedule >

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Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
6	Two-lane highways	E	윤일수	Presentation		
7	General discussion	E	윤일수	Presentation		
8	Midterm examination	E	윤일수			
9	Urban streets	E	윤일수	Presentation		
10	Signalized intersections I	E	윤일수	Presentation		
11	Signalized intersections II	E	윤일수	Presentation		
12	Unsignalized intersections	E	윤일수	Presentation		
13	Corridor and areawide analysis	E	윤일수	Presentation		
14	Pedestrians	E	윤일수	Presentation		
15	Bicycles	E	윤일수	Presentation		
16	Final examination	E	윤일수			

11. Other items of notification

Homework is an essential tool for learning class materials and exercising highway capacity analysis methodologies. Except when stated otherwise, homework will be due at the beginning of the class time as noted. Late homework will not be accepted. In addition, homework should be done without any assistance from other students. No cheating on homework is allowed. Any suspicious homework will not be accepted. Each homework must have a cover sheet saying the name and ID of the student. It is noted that the homework without a cover sheet will not be accepted.