Transportation Systems Analysis and Planning

<table>
<tr><td rowspan="3">Course Name</td><td>Course type (credit/hours)</td><td>Required course(3/3)</td><td>Course code</td><td>E072</td></tr>
<tr><td>Target students Division/major/grade</td><td>Transportation System Engineering/Sophomore</td><td>Opening semester</td><td>2017 2ND SEMESTER</td></tr>
<tr><td>Class time and classroom</td><td>Tue B(Pal211)Thu A(Pal211)</td><td>English Grade</td><td>A(100%English)</td></tr>
<tr><td rowspan="4">Reference to this course</td><td>Prerequisite courses</td><td colspan="3"></td></tr>
<tr><td>Related basic courses</td><td colspan="3">교통공학개론</td></tr>
<tr><td>Recommended concurrent courses</td><td colspan="3"></td></tr>
<tr><td>Related advanced courses</td><td colspan="3">교통수요예측</td></tr>
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<tr><td rowspan="3">Instructor</td><td colspan="2">Name (title/division)</td><td colspan="4">Keechoo Choi(Professor, Transportation System Engineering)</td></tr>
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<tr><td>Office hours</td><td></td><td>Homepage address</td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">Teaching Assistant</td><td colspan="2">Name (title/division)</td><td colspan="4"></td></tr>
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1. Introduction

In this course, the overall systemwide description of all transportation modes and infrastructure would be lectured. To help students understand the transportation systems, this lecture first introduces transportation (or transit) systems of Korea and other advanced countries. At the same time, the fundamentals and methodologies for planning each transportation system are to be provided within the transportation planning (TP) framework. Supply and demand concepts of transportation systems will be covered together with the issues of traffic congestion, accidents and environmental pollution. Planning process with regard to transportation will be suggested for solving the social externality problems caused by transportation. A brief sketch of travel demand forecasting (TDF), which will be covered during the following semester, and the basic models will also be covered. Some other topics to be introduced involve various traffic analysis techniques, economic feasibility analysis and other computer related techniques that will facilitate the overall TDF, TP and transportation related decision-making.

2. Course Objectives

-Understanding of basic transportation systems and their components
-Introduction to the basic skills of transportation systems analysis

본 과목에서는 국내외 교통체계에 대한 이해를 바탕으로 교통계획의 기본 요소와 기법을 다룰 수 있도록 한다. 혼잡비용을 고려한 수요와 공급의 관계를 이해하고, 수요예측의 기본 모델을 소개한다. 이를 통해 현실적인 상황에 대한 평가를 통하여 결과에 대한 해석능력을 습득하게 하여 실제적 적용 능력을 배양한다.

3. Class types and activities

Lecture 90%, Presentation 10%

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 / AjouBb	☐	automatic recording system	☐	web-based assignment
☐	cyber lecture	☐	online content		
☐	class behavior analyazing system	☐	others		

6. Teaching Tools

☐	PBL(Problem Based Learning)	☐	CBL(Case Based Learning)	☐	TBL(Team Based Learning)
☐	UR(Undergraduate Research)	☐	FL(Flipped Learning)	☐	DSAL(Data Science Active Learning)
☐	others				

7. Knowledge and ability required for taking this course

-Recommended prerequisite: Introduction to Transportation Engineering

교통공학에 대한 기본지식과 통계를 비롯한 기초 수학 지식을 함양함으로서, 수학 효과를 높일 수 있다.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance		10%	
midterm exam	1	35%	8th Week
final exam	1	35%	16th Week
quiz			
presentation	1	7%	15th Week
discussion		5%	Participation and Attitude for the classes
homework	4	8%	3~4 times
etc			
study hours	4		

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Ref.	Highway Engineering 7/E	Paul H. Wright	Wiley	2003
Ref.	Civil Engineering Systems Analysis and Design	Alan A. Smith	Wiley	1983
Ref.	Planning & Design of Airports 4/E	Robert Horonjeff	McGraw-Hill	1994
Ref.	Port Planning and Development	Ernst G. Frankel	John Wiley & Sons	1987
Ref.	Transportation Engineering 2/E	C. Jotin Khisty	Prentice Hall	1998
Ref.	Transportation Engineering : Planning and Design 4/E	Paul H. Wright	Wiley	1997
Ref.	Traffic & Highway Engineering	Nicholas J. Garber	Brooks/Cole	2002
Ref.	Urban Transportation Modeling and Planning	Peter R. Stopher	Lexington Books	1975
Ref.	모노레일과 신교통시스템	佐藤信之	골든벨	2008
Ref.	Fundamentals of Transportation System Analysis	Marvin L. Manheim	MIT Press	1979
Ref.	Urban Transportation Systems	Sigurd Grava	McGraw-Hill	2003
Ref.	Applied Transport Economics	Stuart Cole	Kogan Page	1987
Ref.(web)	www.wikipedia.org	Anyone	Wikipedia Foundation	2009
Ref.	Airport Planning & Management 5/E	Alexander T. Wells	McGraw-Hill	2004

10. Class system and Class shedule

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< Class Schedule >

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Introduction & Fundamentals of Transportation System		Keechoo Choi	Lecture	Mid-term Exam	
2	Introduction to Road Transportation		Keechoo Choi	Lecture	Mid-term Exam	
3	Introduction to Rail System		Keechoo Choi	Lecture	Mid-term Exam	
4	Introduction to Light Rail Transit		Keechoo Choi	Lecture	Mid-term Exam	
5	Introduction to Waterway / Airway System		Keechoo Choi	Lecture	Mid-term Exam	
6	Green Transportation / Transportation in Future (1)		Keechoo Choi	Lecture	Mid-term Exam	
7	Transportation in Future (2) / Relationships between Transportation & Land Use Transportation Economics		Keechoo Choi	Lecture	Mid-term Exam	
8	Mid-term Exam		Keechoo Choi			
9	Introduction to Congestion Pricing Theory / Methodology for Systems Analysis (1)		Keechoo Choi	Lecture	Final Exam	
10	Methodology for Systems Analysis (2) / Transportation Planning Conceptualism		Keechoo Choi	Lecture	Final Exam	
11	Transportation Planning Process / Road Traffic Demand Forecasting (1)		Keechoo Choi	Lecture	Final Exam	
12	Road Traffic Demand Forecasting (2)		Keechoo Choi	Lecture	Final Exam	
13	Road Traffic Demand Forecasting (3)		Keechoo Choi	Lecture	Final Exam	
14	Demand Forecasting on Rail / Transportation Project Evaluation		Keechoo Choi	Lecture	Final Exam	
15	Transportation in Future (Students Presentation)		Keechoo Choi	Presentation	Presentation	

< Class Schedule >

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
16	Final Exam		Keechoo Choi			

11. Other items of notification

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