

CA4191: TRANSPORT ECONOMICS

Effective Term

Semester A 2022/23

Part I Course Overview

Course Title

Transport Economics

Subject Code

CA - Civil and Architectural Engineering

Course Number

4191

Academic Unit

Architecture and Civil Engineering (CA)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

3

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

CA2676 Transportation Engineering

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

Transport economics plays important role in the field of transportation studies. It explores the basic operating principles of a comprehensive transport system. Microeconomic principles will be taught to understand the interactions between the

demand and supply sides of transportation. Market structures, pricing strategies, and different aspects of transport costs will be revealed to help students to understand the operational behaviours of transport service providers. Values of time and available mode choices of users will also be involved. Basic modelling concept will be introduced to realize the congestion effects in a transport system. Electronic road pricing and congestion charging will be introduced. Basic concept of using cost benefit assessment to evaluate transport projects will also be given.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 DEC-A2 DEC-A3 app.)			
1	Understand economics using microeconomic principles and tools;	20	x		
2	Understand the relationships between economics and transportation;	25	x		
3	Apply a basic economic model to model and solve a transport problem;	25		x	
4	Study selected transport issues and problems from an economic approach.	30	x		

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

TLAs		Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Explain key concepts, such as theories related to transport economics	1, 2, 3, 4	3 hours/week
2	In-class exercise	Building a basic economic model for modelling transport services	2, 3	
3	Individual assignment	Requires students to individually diagnose the interactions between transportation and economics, thus performing the evaluation	2, 4	
4	Mid-term quiz	Test students' understanding on various taught materials	1, 2, 3	

Assessment Tasks / Activities (ATs)

ATs		CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	In-class exercise	2, 3	15	
2	Individual assignment	2, 4	15	
3	Mid-term quiz	1, 2, 3	20	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

3

Additional Information for ATs

To pass a course, a student must obtain minimum marks of 30% in both coursework and examination components, and an overall mark of at least 40%

Assessment Rubrics (AR)**Assessment Task**

In-class exercise

Criterion

ABILITY to EXPLAIN the methodology and procedure with ACCURACY in using the modelling techniques

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Individual assignment

Criterion

CAPACITY for SELF-DIRECTED LEARNING to understand the principles of transport economics

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Mid-term quiz

Criterion

ABILITY to UNDERSTAND the taught methodology and procedures in using the modelling and calculation techniques

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

Examination

Criterion

ABILITY to UNDERSTAND the taught methodology and procedures in using the modelling and other calculation techniques for real applications

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Part III Other Information**Keyword Syllabus**

Demand and Supply of Transport, Transport Costs and Cost Structure, Market Structures, Pricing Principles and Concepts, Road Pricing, Cost-Benefit Analysis

Reading List**Compulsory Readings**

	Title
1	Paul A. Samuelson and William D. Nordhaus (2010) Economics, McGraw Hill (19th Edition)
2	Richard C Porter (1999) Economics at the wheel: the costs of cars and drivers, Academic Press
3	Tim Powell (2001) The Principles of Transport Economics, PTRC Education and Research Services

Additional Readings

	Title
1	Emile Quinet and Roger Vickerman (2004) Principles of transport economics
2	Mohring, Herbert D. (1976), Transportation Economics, Ballinger Press, Cambridge, Massachusetts
3	Hau, Timothy D. (1992a), "Economic Fundamentals of Road Pricing: A Diagrammatic Analysis," World Bank Policy Research Working Paper Series, WPS 1070, December, The World Bank, Washington, D.C.