CA4191: TRANSPORT ECONOMICS

Effective Term
Semester A 2024/25

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 app.)	DEC-A1	DEC-A2	DEC-A3
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.

Learning and Teaching Activities (LTAs)

	LTAs	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	Mid-term test	1, 2	25	
2	Assignment	2, 3, 4	25	

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

Mid-term test

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

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

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.