EXPANDED COURSE DESCRIPTION
CIVIL ENGINEERING
Lassonde School of Engineering
Civil Engineering
LE / CIVL 4032 3.0 SECTION A
URBAN TRANSPORTATION PLANNING
FALL 2017 / WINTER 2018

Last Modified Date: 08/17/2017

COURSE CALENDAR DESCRIPTION

The goal of this course is to introduce students to the major theories, principles and methods used in the field of urban transportation planning and evaluation. Under transportation planning, the course considers how transportation planners and decision-makers have historically analyzed the way people and goods move around cities. The course examines the four-step travel demand model (the currently most widely used model) giving emphasis to the analytical techniques used to forecast future daily traffic demand on a roadway network. Under transportation project evaluation, the course presents the fundamental concepts and tools used in the economic evaluation of surface infrastructure and transportation system improvement projects. The emphasis is on understanding benefit-cost analysis and life-cycle cost analysis, and how these analyses are used to support decision makers’ project investment decisions. Prerequisites: LE/ENG 2001 3.00; LE/CIVL 3250 3.00

INSTRUCTOR(S)

TBD

TOPICS AND CONCEPTS

Introduction to land use/transportation planning including fundamental principles and concepts

1. The impacts of socio-economic variables on the transportation system and the feedback between transportation and land use
2. Quantitative models comprising the four stage Urban Transportation Planning System (UTPS) including:
   - Trip generation modelling
   - Trip distribution modelling
   - Modal split modelling
   - Traffic assignment modelling

Introduction to the principles and concepts necessary for an evaluation of transportation projects

1. Perform cost/benefit analyses including:
   - Assign monetary values to user benefits and non-user benefits
   - Estimate present value of a project based on the life cycle and expected benefits/costs
   - Account for the impacts of uncertainty (risk and sensitivity analysis)
2. Compare alternative projects using multi-criteria evaluations (MCE)

LIST OF LEARNING OUTCOMES AND EXAMPLES OF

Course Learning Objectives

Upon the completion of this course, students are expected to learn and retain the following concepts and skills:
1. Explain the macro-level relationship between land-use and transportation infrastructure system
2. Calculate forecasted future traffic volumes following four-step transportation planning process for a network
3. Explain the principles and limitations that apply to the financial evaluation of transportation infrastructure projects
4. Assess user benefits and costs for transportation infrastructure improvement projects
5. Prioritize transportation infrastructure projects using financial and/or non-financial evaluations

GRADED ASSESSMENT

Attendance/participation: 5%
Assignments/tutorials: 15%
Term Project: 20%
Midterm Examination: 20%
Final Examination: 40%

ADDITIONAL INFORMATION

No textbook is required for purchase since all necessary information will be provided by the instructor. However, the following textbooks are suggested reading materials for the course:


Tutorials will primarily introduce students to EMME, a popular transportation software package used by government/industry to model the macroscopic flow of traffic on road/transit networks.

ACADEMIC INTEGRITY LINKS

- Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
- Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS

- Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
- Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
- Counselling and Disability Services - http://cds.info.yorku.ca/

Many courses utilize Moodle, York University's course website system. If your course is using Moodle, click here to access it.

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