EXPANDED COURSE DESCRIPTION

CIVIL ENGINEERING
Lassonde School of Engineering
Civil Engineering

LE / CIVL 3260 3.0 SECTION M
TRANSPORTATION PLANNING
FALL 2019 / WINTER 2020

Last Modified Date: 08/28/2019

COURSE CALENDAR DESCRIPTION

This course introduces students to the major theories, principles and methods used in the field of 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. This includes an examination of the four-step travel demand model (the 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 fundamental concepts for the economic evaluation of roadway infrastructure improvement projects. Emphasis is placed on user and non-user costs with additional applications of lifecycle cost analysis, benefit-cost analysis, and the integration of these tools to support effective decision making. Prerequisites: LE/ENG 2001 3.00, LE/CIVL 3160 3.00. Course Credit Exclusion: LE/CIVL 4032 3.00.

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
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ADDITIONAL INFORMATION

TOPICS AND CONCEPTS

This course is designed to give upper-level civil engineering undergraduates a solid understanding of the major theories, principles and hands-on tools used in the field of transportation planning and economics

1. Fundamental principles, concepts and analytical tools used in transportation planning (e.g., the four-step transportation planning process)
   - North American urban transportation system, and current challenges
   - Basic concepts and assumptions in transportation planning process (e.g., the relationship between land-use and transportation)
   - Typical land use and socio-economic variables that influence future traffic demand
   - Trip generation models – how to predict the total number of trips generated in each traffic analysis zone (TAZ)
   - Trip distribution models - how to estimate the number for trips between all TAZs
   - Mode choice models – how to estimate the number of trips made by different transportation modes between all TAZs
   - Traffic assignment models – how to estimate the traffic volume on each link in a study network

2. Fundamental principles, concepts and analytic tools used in the financial evaluation of transportation projects
   - Basic concept of project evaluation for transportation infrastructure improvements
   - Assessing user benefits (e.g., travel time savings) and giving them a monetary value
   - Assessing non-user benefits (e.g., environmental impacts) and giving them a monetary value
LIST OF LEARNING OUTCOMES AND EXAMPLES OF
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: 10%
Term Project and Labs: 25%
Midterm Examination: 25%
Final Examination: 35%

ADDITIONAL INFORMATION
No textbook is required for purchase since all necessary information will be provided by the instructor. However, the following references 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
- Student Accessibility Services (SAS) - https://accessibility.students.yorku.ca/
LAND ACKNOWLEDGEMENT

- We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
- The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
- Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

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