**Roger Lindgren, Ph.D., P.Eng – Bio**

**Preparation**

University of Alberta, B.Sc. (Civil Engineering) 1989

Portland State University, Ph.D. (Civil and Environmental Engineering) 2005

**Professional Registration**

Professional Engineer, Alberta (1991-present)

**Appointments**

* Associate Director, Oregon Transportation Research and Education Consortium. 2006-present.
* Associate Professor (with tenure), Department of Civil Engineering, Oregon Institute of Technology, 2005-present.
* Research Associate, Center for Transportation Studies, Portland State University, 2005-present.
* Assistant Professor, Department of Civil Engineering and Geomatics, Oregon Institute of Technology, 1999-2005.
* Instructor, Department of Civil Engineering Technology, Northern Alberta Institute of Technology, 1992-1999.
* Sessional Instructor, Department of Civil and Environmental Engineering, University of Alberta, 1996-1999.
* Facilities Engineer, Chevron Canada Resources Ltd., Calgary, Alberta, 1989-1992.
* Inspector, UMA Engineering Ltd., Edmonton, Alberta, 1988.
* Engineering Technician, Samide Engineering Ltd., Edmonton, Alberta, 1985-1986.
* Engineering Technician, A.A. Voice Engineers and Constructors Inc., Edmonton, Alberta, 1985.

**Courses Taught at OIT**

ENGR 213 Strength of Materials

ENGR 231 Fluid Mechanics

CIV 371 Introduction to Transportation Engineering

CIV 375 Highway Engineering

CIV 415 Civil Engineering Software Applications

CIV 475 Traffic Enginering

CIV 573 Transportation and Land Development

**Areas of Academic and Research Interest**

I have worked in all areas of civil engineering and at heart I consider myself a generalist. For the past 10 years I have focused my academic attention toward roadway paving materials and transportation engineering design. At I have taught a variety of fundamental and civil engineering courses, with a focus on junior and senior courses in transportation engineering.

I am particularly interested in researching freeway traffic dynamics, particularly those flow features that appear to trigger bottleneck formation and the associated loss of roadway capacity – I have published a number of peer-reviewed articles in this area and have been invited to present my findings at several prominent international traffic symposia. Since the opportunity for freeway research is limited in Klamath Falls, I have developed interests in cold climate paving mix designs and rural highway safety.

**OREGON INSTITUTE OF TECHNOLOGY**

**School of Engineering, Technology, and Management**

**Department of Civil Engineering**

# CIV 371 TRANSPORTATION ENGINEERING Winter 2009

**LECTURES:** T R 8:30-9:50 Location: OW 208

**CREDITS**: 3 credit hours

**INSTRUCTOR**: Dr. Roger Lindgren, OW103 – Office hours as posted or by appointment

E-Mail: [roger.lindgren@oit.edu](mailto:roger.lindgren@oit.edu)

**PREREQUISITES**: GME 161, MATH 252, ENGR 211

**TEXTS**: PRINCIPLES OF HIGHWAY ENGINEERING & TRAFFIC ANALYSIS, Mannering/Kilareski, 4th Edition, J. Wiley and Sons, New York 2009

**COURSE DESCRIPTION**: Introduction to the design, planning, operation, management, and maintenance of transportation systems. Principles for planning multi-modal transportation systems, layout of highways, railroads, and airports, traffic flow modeling and capacity analyses.

**COURSE OBJECTIVES**: Upon successful completion of this course, the student will be able to:

* Describe the multi-modal transportation system of the USA, and describe the roles of government and private industry within that system.
* Utilize mathematics, physics, and psychology to describe the human and mechanical influences on the operation of motor vehicles.
* Design the vertical and horizontal alignments of roadways.
* Conduct basic transportation planning studies and model transportation systems.

**EXAMS**: There will be **one term test** and a **final examination**.

**GRADING**: Term Test(s) 30%

Assignments 40% (Late assignments - 50% of grade)

## Final Exam 30%

90-100 **A**

80-89 **B**

70-79 **C**

<70 **F**

**OREGON INSTITUTE OF TECHNOLOGY**

**Civil Engineering Department**

# CIV 375 Highway Engineering Spring 2009

**LECTURES** MWF 12:00-12:50 PM OW 202

**LAB** Monday OR Tuesday 3:00-5:50 PM Civil Labs in Cornett Hall

**CREDITS** 4 credit hours

**INSTRUCTOR** Dr. Roger Lindgren, P.Eng., OW103

E-Mail: [roger.lindgren@oit.edu](mailto:roger.lindgren@oit.edu)

**PREREQUISITES** CIV 223 Elementary Properties of Materials

ENGR 213 Strength of Materials

**TEXTS**

1. *PRINCIPLES OF HIGHWAY ENGINEERING AND TRAFFIC ANALYSIS*, by Mannering & Kilareski (**same book as required for CIV 371**)
2. *HOT MIX ASPHALT MATERIALS, MIXTURE DESIGN & CONSTRUCTION,* by Roberts et al.
3. *SP-2 SUPERPAVE LEVEL 1 MIXTURE DESIGN*, by Asphalt Institute (**available in PDF on the CIV 375 website – located at www.oit.edu/civil/civ375**)

**CATALOG DESCRIPTION**: Structural design of flexible and rigid pavements, pavement rehabilitation and management. Hot mixed asphalt materials testing and mixture design. Methods of manufacture, transport, and placement of flexible and rigid pavements.

**COURSE OBJECTIVES**: Upon successful completion of this course, the student will be able to:

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| --- |
| Conduct Superpave HMA mix designInterpret the results of Marshall, Hveem, and Superpave HMA mix designs and explain the relative merits of each method.Compute pavement stresses and strains resulting from traffic loading. |
| Apply several mechanistic and empirical pavement design methods to the structural design of flexible and rigid pavements. |
| Compare and contrast results from several pavement design methods in order to formulate a final design recommendation. |
| Utilize computer software for pavement structural design. |
| Describe the HMA production and construction cycle from quarry to finished pavement surface. |

**EXAMS**: There will be two tests, one near mid-term and one during finals week.

**GRADING**: Tests 60%

Assignments 30%

Peer Review 5%

Professionalism 5%

**Approximate grading scale:**

90%+ A

80-90 B

70-80 C

<70 F

**OREGON INSTITUTE OF TECHNOLOGY**

**School of Engineering, Technology, and Management**

**Department of Civil Engineering**

# CIV 415 Civil Design Software Applications Fall 2009

**CLASS TIME -01** Tuesday 10:00-12:00pm BH138

**-02** Thursday 10:00-12:00pm BH138

**CREDITS** 2 credit hours

**INSTRUCTOR** Dr. Roger Lindgren, P.Eng., OW103 – Office hours as posted or by appointment

E-Mail: [roger.lindgren@oit.edu](mailto:roger.lindgren@oit.edu)

**Course Website** www.oit.edu/civil/civ415

**PRE-REQUISITE** CIV 112, MATH 221

**CO-REQUISITE** CIV 401 Civil Engineering Project I

**CATALOG DESCRIPTION** Advanced applications of civil engineering design software will be presented and applied to current year senior design project. Design components will include, at a minimum, site topography, layout of project roadways and parking lots, and layout of water, waste water and storm water lines.

**COURSE OBJECTIVES** Upon successful completion of this course, the student will be able to use AutoDESK® Civil 3D software to

* create and manage data points (survey position and elevation).
* design, edit, view and analyze surfaces (existing and finished ground).
* design a neighborhood with residential and/or commercial building lots (parcels).
* design and edit road/pipe alignments complete with plan, profile and cross section views.
* design road x-section templates with multiple pavement layers.
* design road edge structures such curb/gutter/sidewalk or integrated ditches.

**GRADING**: Assignments/Projects 60%

Professionalism 15%

Quizzes 25%

**OREGON INSTITUTE OF TECHNOLOGY**

**Civil Engineering Department**

# CIV 573/407 Transportation and Land Development Fall 2009

**CLASS TIME**

MW 12:00-12:50pm OW213

M 2:00-5:00pm CO115C

**CREDITS** 3 credit hours

**INSTRUCTOR** Dr. Roger Lindgren, P.Eng.

Office: OW103 – Office hours as posted or by appointment

E-Mail: [roger.lindgren@oit.edu](mailto:roger.lindgren@oit.edu)

**PREREQUISITES** CIV 371 Transportation Engineering

Junior/Senior Class Standing

**Resources**

Course Website

*http://www.oit.edu/civil/civ573*

Institute of Transportation Engineers (ITE) website

*http://*www.ite.org

Transit-Oriented Development in the United States: Experiences, Challenges, and Prospects

online: *http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\_rpt\_102.pdf*

ITE Trip Generation Publications

online: *http://www.ite.org/tripgen/trippubs.asp*

**CATALOG DESCRIPTION** Study of interactions between land development activity and the transportation network. Application of planning and engineering design techniques to manage the impacts of development upon the transportation system.

**COURSE OBJECTIVES** Upon successful completion of this course, the student will be able to

* think critically about the interplay between land use and transportation.
* use Institute of Transportation Engineers (ITE) trip generation procedures to prepare basic traffic impact analyses.
* conduct a trip generation study to industry standards.
* describe and discuss transit oriented developments (TOD).
* assess the demand for and prepare basic design elements of parking facilities.
* describe the role of bicycle and pedestrian modes.
* describe the relationship between working professionals and technical societies such as ITE.

**EXAMS** There will be a midterm and final exam.

**GRADING** Assignments/Projects 40%

Individual Assessment/Professionalism 10%

Test and Quizzes 50%

**OREGON INSTITUTE OF TECHNOLOGY**

**Civil Engineering Department**

# CIV 475 Traffic Engineering Spring 2009

**CLASS TIME** MWF 10:00-10:50am CO115C

**CREDITS** 3 credit hours

**INSTRUCTOR** Dr. Roger Lindgren, P.Eng.

Office: OW103 – Office hours as posted or by appointment

E-Mail: [roger.lindgren@oit.edu](mailto:roger.lindgren@oit.edu)

**PREREQUISITES** CIV 371 Transportation Engineering

MATH 361 Statistical Methods

**REQUIRED TEXTS** PRINCIPLES OF HIGHWAY ENGINEERING AND TRAFFIC ANALYSIS - Mannering & Kilareski

**SUPPLEMENTAL TEXTS** TRANSPORTATION ENGINEERING; Wright & Ashford

TRAFFIC ENGINEERING; McShane, Roess, Prassas

MANUAL OF TRANSPORTATION ENGINEERING STUDIES – Institute of Transportation Engineers

Software Manuals

**CATALOG DESCRIPTION**: Basic technology common to the movement and control of urban and rural traffic. Land use planning as it relates to traffic patterns. Data gathering and analysis techniques with related computer applications.

**COURSE OBJECTIVES**: Upon successful completion of this course, the student will be able to:

* Describe the operation principles of traffic signal systems, and analyze the role of traffic signal control systems within the broader context of intelligent transportation systems (ITS)
* Contrast benefits and problems arising from signal operations
* Employ the principal Manual of Uniform Traffic Control Devices (MUTCD) warrants for traffic signals
* Calculate optimal signal timings and performance measures for basic intersection scenarios
* Model urban/rural intersections by means of computerized microscopic simulation software
* Appraise the effectiveness of existing intersection designs and select design improvements
* Prepare traffic studies in written and oral formats

**EXAMS**: There will be a number of tests and quizzes throughout the term.

**GRADING**: Assignments/Projects 40%

Individual Assessment/Professionalism 20%

Test and Quizzes 40%