



Michigan Technological University

Course Syllabus
CE5408 – Public Transit
Civil and Environmental Engineering
Fall 2012

Instructor Information

Instructor: William H. (Bill) Leder, MSCE, P.E.
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Office Hours: Open door on Tuesday and Thursday or by appointment

Bill Leder has 40 years experience in government, consulting, university teaching, and research, and is an Adjunct Professor in the Civil and Environmental Engineering Department at Michigan Tech. He received a BSCE from Michigan Tech and a MSCE from the Massachusetts Institute of Technology, and then went on to a career with the Dallas-Fort Worth International Airport and Lea+Elliott, a world leader in automated people mover systems and transit consulting. Bill teaches Senior Design, Public Transit, High Speed Passenger Rail, and Introduction to Consulting Engineering.

Course Identification

Course Number: CE5408 – 3 credits
Course Name: **Public Transit**
Course Location: 214 Dillman Hall
Class Times: T/Th, 2:05 – 3:20 pm
Prerequisites: Graduate, senior, or junior standing

Course Description/Overview

An exploration of public transit that includes: history, government policy, market behavior, sustainability, funding and financing, user characteristics, transit modes and technology, level of service, planning, operations, facilities design, construction, marketing, and future trends.

Course Learning Objectives

- Understand the function of public transit and the role of government units.
- Understand how transit contributes to a sustainable future.
- Learn about transit planning, design, operations, and tradeoffs.
- Learn, understand, and apply the capabilities of transit mode alternatives.
- Learn how to design a transit system and lay out transit routes.
- Understand and apply the relationship between land use, urban planning, and public transit.
- Obtain knowledge of public transit current events.

Course Resources

No Required Course Text – but there will be numerous handouts, and you will find that a large 3-ring loose-leaf notebook/binder will be valuable to help keep your materials organized.

A Few of Many Useful Web Sites:

USDOT/FTA – www.fta.dot.gov MDOT – www.michigan.gov/mdot
APTA – www.apta.com

Grading Scheme

Grading Policy

Grades will be based on the following:

Homework, Assignments, and Projects	20%
Tests (two @ 25% each)	50%
Major Research Paper	20%
Class Participation	10%
Total	100%

Grading System

Letter Grade	Percentage	Grade points/credit	Rating
A	93% and above	4.00	Excellent
AB	88% – 92%	3.50	Very good
B	82% – 87%	3.00	Good
BC	76% – 81%	2.50	Above average
C	70% – 75%	2.00	Average
CD	65% – 69%	1.50	Below average
D	60% - 64%	1.00	Inferior
F	59% and below	0.00	Failure
I	Incomplete; given only when a student is unable to complete a segment of the course because of circumstances beyond the student's control. A grade of incomplete may be given only when approved in writing by the department chair or school dean.		
X	Conditional, with no grade points per credit; given only when the student is at fault in failing to complete a minor segment of a course, but in the judgment of the instructor does not need to repeat the course. It must be made up within the next semester in residence or the grade becomes a failure (F). A (X) grade is computed into the grade point average as a (F) grade.		

Course Policies

Everyone is expected to attend every class - the best students rarely miss a class. If you miss classes, you are losing half the value of your Michigan Tech Education. If you do miss a class, check with a classmate or the instructor to determine what you missed.

Deadlines for submitting assignments will be determined by the class and instructor when the assignment is given. Students are expected to submit assignments on time. Penalties for late assignments may be given.

Collaboration/Plagiarism Rules

Cell phones, Blackberries, iPods, PDAs, or any other electronic devices are not to be used in the classroom. Information exchanges on these devices, or in any other manner, during class or tests and exams are also prohibited and violate the Academic Integrity Code of Michigan Tech. Students are expected to follow the University's standards of scholarship with regard to citing others' work.

University Policies

Academic regulations and procedures are governed by University policy. Academic dishonesty cases will be handled in accordance the University's policies. Definitions of academic dishonesty include plagiarism, cheating, fabrication, and facilitation of academic dishonesty, and students found guilty can receive a sanction ranging from a warning to expulsion.

If you have a disability that could affect your performance in this class or that requires an accommodation under the Americans with Disabilities Act, please see me as soon as possible so that we can make appropriate arrangements. The Affirmative Action Office has asked that you be made aware of the following:

Michigan Tech complies with all federal and state laws and regulations regarding discrimination, including the Americans with Disabilities Act of 1990. If you have a disability and need a reasonable accommodation for equal access to education or services at Michigan Tech, please call the Dean of Students Office, at 487-2212. For other concerns about discrimination, you may contact your advisor, department head or the Affirmative Action Office, at 487-3310

Academic Integrity: http://www.studentaffairs.mtu.edu/dean/judicial/policies/academic_integrity.html

Affirmative Action: <http://www.admin.mtu.edu/aao/>

Disability Services: http://www.admin.mtu.edu/urel/studenthandbook/student_services.html#disability

Equal Opportunity Statement: <http://www.admin.mtu.edu/admin/boc/policy/ch3/ch3p7.htm>

Tentative Course Schedule

Week 1

Introduction to public transit
History
Personal public transit experiences
Opportunities for transit professionals
Transportation economics

Week 2

Sustainability
Transit modes and technologies

Week 3

Coefficient of rolling friction, modes comparison, system configurations, system performance calculations

Week 4

Minimum headway, velocity, tangents, horizontal curves
Spirals, vertical curves

Week 5

Career Fair on Tuesday, 10/02 -- probably no class meeting
Explain major analysis assignment – Centerville Rapid Transit

Week 6

TCRP Trackwork Design Handbook, review for midterm exam

Week 7

Tuesday, October 16, **Midterm Exam.** Closed notes, one page of student compiled information allowed.
DIA presentation.

Week 8

Assign research report topics
Charlotte LRT video

Week 9

Smart growth
Transit Oriented Development
Ridership and surge factors, station planning

Week 10

ADA
Designing for pedestrians

Week 11

Safety and security, hazard analysis
Bus transit

Week 12

Transit procurement, commercial processes, technical specifications
London Transport video

THANKSGIVING BREAK

Week 13

Student Report Presentations

Week 14

Student Report Presentations
Public Transit in the Future

Take Home Final Exam: Handed out on Thursday, December 13. Due not later than 5:00 pm on Monday, December 17. Earlier is strongly encouraged.