

MICHIGAN TECHNOLOGICAL UNIVERSITY
Department of Civil and Environmental Engineering

COURSE NOTICE

CE5408 -- PUBLIC TRANSIT

This three-credit course will be taught during the Fall 2008 Semester.

Background

The term “transit” is defined as urban, public transportation services with fixed routes and schedules. In the literature “transit” also is referred to as mass transit, mass transportation, or public transit. Transit modes include rapid (heavy) rail, light rail, commuter rail, bus, automated people mover, monorail, maglev, personal rapid transit, and vintage trolley.

Statistics on travel in the United States in 2001 are revealing. Some 9.1 billion trips were made using public transit. However, public transit accounted for only 1.5% of all trips. With regard to journey to work trips, 4.9% were made by public transit. Personal vehicle (automobile) occupancy for journey to work trips averaged 1.14 persons. There were 1.9 personal vehicles per household and 1.8 drivers per household. For the first time in history, there were more automobiles than drivers! The use of public transit peaked in the 1940s but has been steadily increasing in recent years with growth in urban areas, rising energy prices, and increased concern for a clean environment. The federal government currently is investing about \$7 billion per year in public transit through Federal Transit Administration grants. *Sources: U.S Bureau of Transportation Statistics and Federal Transit Administration.*



Diesel Multiple Unit Commuter Train

Topics Covered

This course will explore planning, engineering, and policy aspects of public transit. Topics will include:

- History of transit;
- The role of government and policy making;

- The role of transit in a sustainable, energy independent future;
- The relationship between land use planning and transit;
- The engineering characteristics of transit technology to include vehicles, track and guideway, power distribution, signaling and communications, vehicle maintenance and storage facilities, at-grade, underground, and aerial structures;
- Transit applications in urban areas and ridership estimation;
- Route layout and alignment engineering;
- Performance calculations including vehicle capacity, acceleration/deceleration, speed, trip time, station dwell, headway, system capacity, load factor, fleet size, and schedules;
- Transit system reliability and availability calculations;
- Codes and standards governing design and operation;
- Safety and security;
- How public agencies procure transit system infrastructure and equipment, including the use of design-build-operate-maintain contracting;
- Fare collection;
- Passenger information and marketing; and
- Other topics based on student interest.



Track Construction



San Francisco MUNI Light Rail System

Instructor

This course will be taught by Bill Leder, an Adjunct Professor in the CEE Department with 34 years of public and private sector experience in public transit and airport planning and engineering.

Job Opportunities

Consulting firms, government agencies at all levels, and transit equipment suppliers are interested in engineers with public transit knowledge and skills.

Questions?

For more information, contact Bill Leder by email at bleder@mtu.edu or stop by Dillman 301G.