

LEARNING GOALS

Students will :

Rail Industry Knowledge Base

- Be familiar with rail system components
- Understand industry terminology
- Understand engineering and operational practices of the rail transportation industry

Professional Development

- Gain disciplinary knowledge of rail transportation industry topics
- Apply practical concepts and technologies to industry issues
- Work with design and data analysis of various system components

Leadership

- Learn management fundamentals
- Develop problem solving & effective communication skills
- Experience industry mentoring

Communication

- Demonstrate effective communication in multiple formats
- Experiences opportunities to meet industry leaders and hear from guest speakers

Industry Safety Culture

- Understand fundamental processes that are put in place by the rail industry to achieve optimum safety
- Research of new procedures and technologies to further increase industry safety

Rail Transportation Minor (Min. 19 Credits)

Required Courses (7 Credits)

CE 4404 - Railroad Engineering
CE 3490 - Rail Transportation Seminar
OSM 4700 - Logistics and Transportation Management

Leadership Electives (3 Credits)

MGT 3100 Leadership Development	HU 3120 - Technical and Professional Communication
AF 3010 Leadership Studies I	OSM 3200 - Project Management
AF 3020 - Leadership Studies II	MGT 3000 - Organizational Behavior

Railroad Focus Technical Electives (9 Credits)

Civil Track

CE 3401 – Transportation Engineering
CE 4333 - Estimating and Planning of Construction Projects
CE 4407 - Transportation Design
CE 4905 - Senior Design (Railroad Theme)*
CE 4990 - Independent Study in Rail Topics*
CE 5408 - Public Transit
XX-XXXX A course in rail topics from another University*

Mechanical Track

MEEM 3900 – Engineering Design Process
MEEM 4220 - Internal Combustion Engines I
MEEM 4450 - Vehicle Dynamics
MEEM 4901/4902 - Senior Capstone Design (Railroad Theme)*
MEEM 4990 - Independent Study in Rail Topics*
XX-XXXX A course in rail topics from another University*

Electrical Track

EE 3120 – Electric Energy Systems
EE 4219/4220- Intro to Electric Machinery and Drives with lab
EE 4227/4228 - Power Electronics with lab
EE 3160 – Signal Systems
EE 3171 – Microcontroller Applications
EE 3261 – Control Systems
EE 4252 – Digital Signal Processing and Applications
EE4253 – Real Time Signal Processing
EE 4800 – Special Topics with Railroad Focus
EE 4901/4910 – EE Design Project with Railroad Focus
XX-XXXX A course in rail topics from another University*

**EMAIL US FOR MORE INFORMATION
REGARDING THE MINOR**

RAIL@MTU.EDU

* An independent study, project, or a senior or enterprise design course with a railroad focus in the student's major discipline, or a course in rail topics from another university may be substituted for one of the Railroad Focus courses with prior written approval by the Director, Rail Transportation Program.