

## Michigan Technological University

### Minor in Rail Transportation

Program Code: ECRM, Academic Year 2018-19

Department of Civil and Environmental Engineering

Total Credits Required: 18

#### Required Courses: 7 credits

Course	Credits
CEE 4404 Railroad Engineering (3)	
CEE 3490 Introduction to Rail Transportation (1)	
OSM 4700 Logistics and Transportation Management (3)	

#### Leadership/Professional Elective: choose one course for 3 credits

Course	Credits
AF 3010 Leadership Studies I (3)	
AF 3020 Leadership Studies II (3)	
HU 3120 Technical and Professional Communication (3)	
MGT 3000 Organizational Behavior (3)	
MGT 3100 Leadership Development (3)	
OSM 3200 Project Management (3)	

#### Choose One Area of Study

##### Civil (choose at least 9 credits)

Course	Credits
CEE 3401 Transportation Engineering (3)	
CEE 4333 Estimating and Planning of Construction Projects (3)	
CEE 4407 Transportation Design (4)	
CEE 4905 Engineering Design Project* (3)	
CEE 4920 Independent Study in Civil Engineering* (3)	
CEE 5408 Public Transit (3)	

##### Mechanical (choose 9 credits)

Course	Credits
MEEM 3911 Mechanical Engineering Practice IV (3)	
MEEM 4220 Internal Combustion Engines I (3)	
MEEM 4450 Vehicle Dynamics (3)	
MEEM 4665 Production Planning (3)	
MEEM 4901 Senior Capstone Design I* and MEEM 4911 Senior Design II* (2)	
MEEM 4990 Independent Study in Mechanical Engineering* (3)	

##### Electrical (choose 9 credits)

Course	Credits
EE 3120 Electric Energy System (3)	
EE 4219 and 4220 Introduction to Electric Machinery and Drives with Lab (4)	
EE 4227 and 4228 Power Electronics with Lab (4)	
EE 3160 Signal Systems (3)	
EE 3171 Microcontroller Applications (4)	
EE 3250 Introduction to Communications Theory (3)	
EE 3261 Control Systems (3)	
EE 4253 Real Time Signal Processing (3)	
EE 4805 Electrical Engineering Project*	
EE 4901 EE Design Project I* (2) and EE 4910 EE Design Project II* (2)	

\*Prior written approval by the Director of the Rail Transportation Program is Required

Prerequisites to the above courses can be found in the Michigan Tech Undergraduate Catalog at [mtu.edu/catalog](http://mtu.edu/catalog)

Prior written approval by the Director of the Rail Transportation Program is required to substitute a rail topics course from another university.