

# RAIL TRANSPORTATION ENGINEERING, B.S.

**Begin Campus:** Any Penn State Campus

**End Campus:** Altoona

## Degree Requirements

For the Bachelor of Science degree in Rail Transportation Engineering, a minimum of 130 credits is required:

Requirement	Credits
General Education	45
Requirements for the Major	112

27 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 9 credits of GWS, 6 credits of GQ, 9 credits of GN, 3 credits of GS.

### General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (<https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/>) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

### Foundations (grade of C or better is required.)

- **Quantification (GQ):** 6 credits
- **Writing and Speaking (GWS):** 9 credits

### Knowledge Domains

- **Arts (GA):** 6 credits
- **Health and Wellness (GHW):** 3 credits
- **Humanities (GH):** 6 credits
- **Social and Behavioral Sciences (GS):** 6 credits
- **Natural Sciences (GN):** 9 credits

### Integrative Studies (may also complete a Knowledge Domain requirement)

- **Inter-Domain or Approved Linked Courses:** 6 credits

## University Degree Requirements

### First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

### Cultures Requirement

6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

### Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

### Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

### Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

### Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80>)). For more information, check the Suggested Academic Plan for your intended program.

### Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (<http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44>).

Code	Title	Credits
<b>Prescribed Courses</b>		
ACCTG 211	Financial and Managerial Accounting for Decision Making	4
CE 310	Surveying	3
CE 360	Fluid Mechanics	3
ECON 102	Introductory Microeconomic Analysis and Policy	3
EDSGN 100	Cornerstone Engineering Design	3
ENGL 202C	Effective Writing: Technical Writing	3
GEOSC 1	Physical Geology	3
MATH 220	Matrices	2
MATH 251	Ordinary and Partial Differential Equations	4
PHYS 212	General Physics: Electricity and Magnetism	4
RTE 301	Railroad Industry Overview and Economic Regulation	3
RTE 402	Railroad Operations Practicum	3

RTE 403	Railroad Track Practicum	3
RTE 404	Railroad Mechanical Practicum	3
RTE 406	Railroad Capstone Project	4
STAT 401	Experimental Methods	3
<i>Prescribed Courses: Require a grade of C or better</i>		
CE 332	Professionalism, Economics & Construction Project Delivery	3
CE 333W	Construction Management I	3
CE 335	Engineering Mechanics of Soils	3
CE 336	Materials Science for Civil Engineers	4
CE 340	Structural Analysis	3
CHEM 110	Chemical Principles I	3
EMCH 211	Statics	3
EMCH 212	Dynamics	3
EMCH 213	Strength of Materials	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
PHYS 211	General Physics: Mechanics	4
RTE 302	Railroad Track Location, Construction and Maintenance	3
RTE 303	Railroad Operation and Safety	3
RTE 305	Railroad Communications and Signals	3
<b>Additional Courses</b>		
CAS 100A	Effective Speech	3
or CAS 100B	Effective Speech	
CMPS 201	Programming for Engineers with C++	3
or CMPS 202		
ENGL 15	Rhetoric and Composition	3
or ENGL 30H	Honors Rhetoric and Composition	
Select 3 credits of technical electives from departmental list in consultation with adviser		3