

Railroad Engineering and Safety Programs

from the University of Delaware's College of Engineering



Get on the right track to advance in the exciting railroad industry!

Graduate Certificate Program

Railroad activity in the United States is flourishing, with expansion across the industry - in freight, passenger (inter-urban and commuter), transit, and emerging high-speed rail. With increased activity comes the need for highly trained professionals to ensure operating safety, efficiency, and cost-effective use of resources. Yet many of the most experienced engineers and supervisors are retiring, leaving a gap in knowledge, experience and capability. This certificate program can help fill that need.

The Graduate Certificate in Railroad Engineering is designed for engineering professionals working in the area of railroad engineering or for those desiring to expand their knowledge of railroad engineering and related engineering disciplines, to thereby become viable candidates for advancement in the railroad industry.



“Top-notch courses taught by the best in the business. Should serve as mandatory training for all track engineers working on an operating railroad. There is no doubt that this course will have a positive impact on both the student and the organization they represent.”

—Andrew Off, Assistant General Manager of Transit Infrastructure and Engineering Services, Washington Metropolitan Area Transit Authority (WMATA)



College of Engineering

Department of Civil and Environmental
Engineering

FOR MORE INFORMATION

Contact Professor Allan M.

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Graduate Certificate Program

The Graduate Certificate in Railroad Engineering is available on-line, allowing students to view the content as their weekly schedule permits. All homework and exams are also available to be taken and submitted on-line.

Required Core Courses (*three courses*):

CIEG614 Railroad Geotechnical Engineering

Designing, constructing, maintaining railway track. Developing railway track substructure: materials, mechanics, drainage, loading, slopes, design, maintenance, measurements and management and case studies. Track sub-structure issues related to load freight and high-speed passenger rail traffic.

CIEG617 Intro to Railroad Safety & Derailment Engineering

Explores the engineering issues associated with common types of derailments, including track, equipment and operator derailments. The specific failure mechanisms associated with key classes of derailments are examined along with the technologies available for reducing these types of derailments.

CIEG618 Intro to Railroad Engineering

Introduction to railroad track structures and their major components, including functions and modes of degradation and failure. Explore static and dynamic load environments and engineering design to effectively distribute loads throughout a structure. Provides both theoretical and practical approaches to track design as well as useful design, optimization and maintenance recommendations for key track components

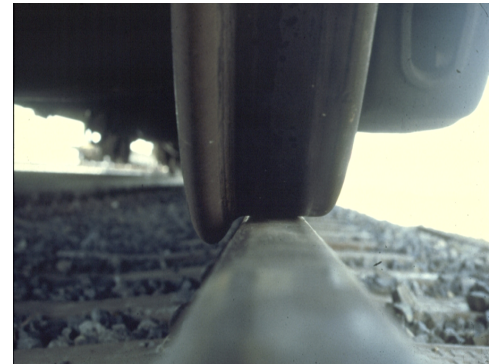
All graduate railroad engineering courses require undergraduate level background in engineering or equivalent.

ABOUT THE DIRECTOR

Dr. Allan M. Zarembski is an internationally recognized expert in railroad engineering with extensive experience with railroads on all continents. The Railway Engineering and Safety Program at the University of Delaware is dedicated to providing education and advanced research on railway engineering, safety, operations and economics for the North American and international railway and transit industry.

“Having been in the railway industry for 25 years, I decided to pursue my PhD in Civil Engineering, which has been a personal goal for many years. With the development of the Railroad Engineering and Safety Program at the University of Delaware, it was a logical choice. I have been able to add to my railway education and experience with in depth engineering studies in the areas of track analysis, derailment investigation and geotechnical aspects of railway engineering.”

—Joseph Palese, Senior Director of Engineering Technology, Harsco Rail



“After working in the South American Railroad Industry for 6 years, not only did [the program] significantly broaden my technical railroad knowledge, but it also gave me a much broader understanding of the North American Industry and the Railroad Industry worldwide. After completing the course, professionally I feel more prepared and confident to talk to customers and work on different projects.”

*—Gabriel Schmitzer
Region Sales Manager for South America,
Harsco Rail*



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