

# Credit Information

## Continuing Education Credit Information

Each webinar offers 4.0 PDHs to professional engineers and 4.0 HSW continuing education hours to architects licensed in all states.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), and North Carolina (S-0130). HalfMoon Education is deemed an approved continuing education sponsor for New York engineers and architects via its registration with the American Institute of Architects Continuing Education System (Regulations of the Commissioner §68.14(i)(2) and §69.6(i)(2)). Only AIA HSW-approved courses qualify for New York engineering credit. Other states do not preapprove continuing education providers or courses.

The American Institute of Architects Continuing Education System has approved each course for 4.0 LU | HSW (Sponsor No. J885). Only full participation is reportable to the AIA/CES

Completion certificates will be awarded to participants who complete this event, respond to all prompts, and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

## Webinar Instructions

Each webinar session earns continuing education credit and can be registered for individually. All attendees must log-on through their own email – attendees may not watch together if they wish to earn continuing education credit. HalfMoon Education Inc. must be able to prove attendance if either the attendee or HalfMoon Education Inc. is audited.

Certificates of completion will be available for download and printing upon completion of a follow-up quiz with at least 80% accuracy.

Webinars are presented via **GoToWebinar**, an easy-to-use application that can be run on most systems and tablets. Instructions and login information will be provided in an email sent close to the date of the webinar. **It is highly recommended that you download, install and test the application before the webinar begins by clicking on the link in the email.**

### GoToWebinar system requirements:

**Operating System:** Windows 7 - 10, Mac OSX Mavericks - macOS Catalina, Linux, Google Chrome OS, Android OS 5 (Lollipop) - Android 9 (Pie), iOS 10 - iOS 12, Windows Phone 8+, Windows 8RT+

**Web browser:** The two most recent versions of Google Chrome or Mozilla Firefox

**Internet connection:** Minimum of 1Mbps, Mobile: 3G or better (WiFi Recommended)

**Hardware:** 2GB of RAM (minimum), 4GB or more of RAM (recommended)

**For more information visit the “Support” section at [www.gotowebinar.com](http://www.gotowebinar.com).**

# Railroad Engineering and Safety Webinar Series

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## Railroad Engineering and Safety Webinar Series

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## HalfMoon Education Online Learning

# Railroad Engineering and Safety Webinar Series



1. Advancement in Railroad Engineering: Turnout Design  
- Friday, October 1, 2021
2. Advancement in Railroad Engineering: Maglev  
- Friday, October 8, 2021
3. Advancement in Railroad Engineering: Track Maintenance  
- Friday, October 15, 2021
4. Advancement in Railroad Engineering: Regenerative Braking System - Friday, October 22, 2021
5. Basic Railroad Accident Causes and Analysis  
- Friday, October 29, 2021
6. Advanced Analysis of Railroad Accident Causes and Prevention Techniques - November 5, 2021

### Total Series Continuing Education Credits

**Professional Engineers**  
24.0 PDHs

**AIA**  
24.0 LU | HSW

**Architects**  
24.0 HSW CE Hours



*Each 4-hour course is \$200 per registration. Attend all six for \$900!*

Please visit **www.halfmoonseminars.org** to register and look for the Railroad Engineering and Safety Webinar Series, or call our Customer Service Department at (715) 835-5900.

## Advancement in Railroad Engineering: Turnout Design

Friday, October 1, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- What is a turnout in a railroad track structure?
- Why is turnout design more critical compared to other portions of track structure?
- What are the different features of turnouts and different types of special track works?
- What are the various turnout selection criteria?
- What is the necessity for turnout design-higher diverging speed in same footprint and low cost modification of existing turnouts?
- General turnout configuration affecting diverging speed
- Proposed hypothesis for turnout design-concept    of optimal lateral force
- Effect of cant deficiency on design of turnout
- How is the concept of operation research useful in turnout design optimization?
- What is the concept of “turnout design - higher diverging speed in the same footprint with low cost modification of existing turnouts?
- Recommendation for low cost modification of existing turnouts for higher diverging speed
- Scope of further research in the field of turnout design necessity for turnout design-higher diverging speed

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## Advancement in Railroad Engineering: Maglev

Friday, October 8, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- What are the special challenges to the United States transportation industry?
- Why is high speed rail not effective for United States Transport?
- What is AMPS (assisted magnetic propulsion system)?
- Concept of magnetic levitation (Maglev)
- Various laws related to Maglev
- What are the pros and cons of the Maglev system with respect to the conventional railroad system?
- Electromagnetic suspension (EMS) and Electrodynamic suspension (EDS) systems
- Global advancement of Maglev technology
- What is the prospect of Maglev in the US transportation system?
- Technical feasibility of hybrid Maglev system
- Life cycle cost analysis of hybrid Maglev system
- Feasibility study of Maglev system compatibility to existing railroad in USA and abroad

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## Advancement in Railroad Engineering: Track Maintenance

Friday, October 15, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- What are the various components of a track structure?
- What are the functions of various components of a track structure?
- Illustration of different types of railroad cross section
- What is conventional manual track maintenance?
- What are the three main modern methods of track maintenance?
- What is mechanized maintenance or mechanical tamping?
- What is directed track maintenance (D.T.M.)?
- What is measured shovel packing (M.S.P.)?
- What are the various factors affecting track maintenance cost?
- For advanced maintenance strategies, what are the recommendations from operators’ (railroad companies’) point of view?
- What are the various preventive cost effective track maintenance practices?
- What are the various curative/crisis cost effective track maintenance practices?

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## Advancement in Railroad Engineering: Regenerative Braking System

Friday, October 22, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- What is a “regenerative braking system (RBS)”?
- What is the basic difference between “conventional braking system” and RBS?
- Concept of RBS in conventional railroad and Maglev system
- Potential of    use of    RBS in conventional railroad technology
- Potential of use of RBS in Maglev technology
- Prospect of using RBS technology in the transportation industry (including railroad industry)
- Concept of magnetic braking
- Concept of regenerative braking characteristics of linear induction motor for Maglev
- Concept of energy management in RBS      • Concept of power management in RBS
- Scope of further research of using RBS technology in the transportation industry (including railroad industry)
- Feasibility study of on-car RBS for electric rail applications

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## Basic Railroad Accident Causes and Analysis

Friday, October 29, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- What is the relevance of “rail-road accident” in the present context?
- What are the main causes of railroad accidents?
- What is the history of the railroad accident?      • Classification of railroad accidents
- Illustrative pictures of the railroad accident and discussion
- Illustrative videos of railroad accidents and discussion
- Basic illustration of Federal Railroad Administration (FRA) railroad accident data analysis?
- Advanced illustration of Federal Railroad Administration (FRA) railroad accident data analysis?
- FRA multiple accident data analysis

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## Advanced Analysis of Railroad Accident Causes and Prevention Techniques

November 5, 2021 | 8:30 am - 1:00 pm CDT (incl. two 15-min breaks)      **Tuition:** \$200

**Credits:** Professional Engineers: 4.0 PDHs    Architects: 4.0 HSW CE Hours    AIA: 4.0 LU|HSW

**Agenda:**

- Background of “rail-road accident”
- Define “rail-road accident”
- Multiple case studies of historic railroad accidents
- Sample railroad accident investigation
- Illustrative pictures of railroad accident and discussion
- Illustrative videos of railroad accidents and discussion
- What are basic techniques of railroad accident prevention?
- What are advanced techniques of railroad accident prevention?
- Lesson learned from previous railroad accidents
- Scope of future work in the field of railroad accident

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## Webinar Series Presented by Avinash Prasad

Mr. Prasad has more than 30 years of professional experience in the civil engineering, land surveying, and management fields. He has been a registered land surveyor in the states of New York and Connecticut since 2017 and 2004, respectively. Also, he is a registered professional engineer in five states: NJ, NY, CT, MA, RI. Mr. Prasad is a Doctor of Philosophy candidate at New York University. His ongoing doctorate degree at NYU major is Bridge Asset Management and minors are Structural Engineering and Technology Management. Mr. Prasad has double master of science degrees in Civil Engineering and Engineering Management from New Jersey Institute of Technology and a BS degree in Civil Engineering. He is a New Jersey state-certified emergency medical technician (EMT), emergency medical responder (EMR) and fire fighter (FF). Mr. Prasad is a Fellow of American Society of Civil Engineers, and he is an active member of several professional organizations such as AREMA, PMI, AISC, NYSAPLS, IPWE, IRT, and IIBE. His research papers have been accepted and published by several technical magazines including Railway Track and Structures. Mr. Prasad’s technical papers were accepted in AREMA and ASCE conference proceedings for presentations and or publications multiple times. Mr. Prasad is a professional speaker and has been providing professional development hours for professional engineers and land surveyors for more than a decade.

## Additional Learning

### Suspension Bridges and Tunnels for Railroads and Highways Series

**Suspension Bridge: Basic Concepts & Structural Evaluation**  
- Friday, October 1, 2021 | 1:30 - 6:00 pm CDT

**Suspension Bridge, Advanced Concepts & Structural Evaluation**  
- Friday, October 8, 2021 | 1:30 - 6:00 pm CDT

**Basic Tunnel Design & Cost Analysis**  
- Friday, October 15, 2021 | 1:30 - 6:00 pm CDT

**Advanced Tunnel Life Cycle Cost Analysis**  
- Friday, October 22, 2021 | 1:30 - 6:00 pm CDT

For more information and other online learning opportunities visit:  
**www.halfmoonseminars.org**