

Credit Information

Suspension Bridges and Tunnels for Railroads and Highways

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)). Other states do not preapprove continuing education providers or courses.

The American Institute of Architects Continuing Education System has approved each webinar 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).

Infrastructure: Structural Analysis and Sustainability

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HalfMoon Education Webinar Series
- Suspension Bridges and Tunnels for Railroads and Highways
- Significance of Sustainable and Resilient Critical Infrastructure Systems

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HalfMoon Education Webinar Series

Suspension Bridges and Tunnels for Railroads and Highways

- October 1, October 8, October 15, and October 22, 2021

Infrastructure: Structural Analysis and Sustainability

- October 29 and November 5, 2021

To register, please visit us online at:

www.halfmoonseminars.org

Have questions or wish to register by phone?

Give us a call at 715-835-5900 and press 1 for Customer Service.



HalfMoon Education Webinar Series



Suspension Bridges and Tunnels for Railroads and Highways

1. Suspension Bridge Basic Concepts and Structural Evaluation - Friday, October 1, 2021
2. Suspension Bridge Advanced Concepts and Structural Evaluation - Friday, October 8, 2021
3. Basic Tunnel Design and Cost Analysis - Friday, October 15, 2021
4. Advanced Tunnel Life Cycle Cost Analysis - Friday, October 22, 2021

Series Continuing Education Credits

Professional Engineers	Architects	AIA
16.0 PDHs	16.0 HSW CE Hours	16.0 LU HSW

Infrastructure: Structural Analysis and Sustainability

1. Innovative Structural Analysis Methods to Avoid Failures - Friday, October 29, 2021
2. Significance of Sustainable and Resilient Critical Infrastructure Systems - Friday, November 5, 2021

Series Continuing Education Credits

Professional Engineers	Architects	AIA
8.0 PDHs	8.0 HSW CE Hours	8.0 LU HSW

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Suspension Bridges and Tunnels for Railroads and Highways

Tuition: \$200 per registrant per webinar,
\$600 per registrant when you attend all four webinars

Total Series Credits:

Professional Engineers: 16.0 PDHs Architects: 16.0 HSW CE Hours
AIA: 16.0 LU | HSW

Suspension Bridge Basic Concepts and Structural Evaluation

Friday, October 1, 2021 | 1:30 - 6:00 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:

- Define the major components of suspension bridge
- What is structural evaluation of a bridge?
- Uniqueness of suspension bridges in comparison to other types of bridges
- How to increase the service life of a suspension bridge?
- Concept of FLAGS
- Various types of inspections of suspension bridges
- Concept of NDT (non destructive testing) as applied to suspension bridges
- Benefits of NDT (non destructive testing) compared to conventional inspection
- Innovative structure evaluation techniques of suspension bridges
- What is bridge asset management (BAM)?
- Why is BAM required?
- What is the limitation of the current/previous BAM?

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Suspension Bridge Advanced Concepts and Structural Evaluation

Friday, October 8, 2021 | 1:30 - 6:00 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:

- Advanced knowledge of suspension bridges
- Fracture critical and fatigue prone details of a suspension bridge
- Comparison of highway and railroad loading on suspension bridges
- Advanced structural evaluation techniques of suspension bridges
- Reasons for structural failure of suspension bridges
- Structural problems of New York state suspension bridges carrying highway and railroad traffic
- Innovative structure evaluation techniques of suspension bridges
- What is risk rating and condition rating in BAM?
- Correlation between condition rating and risk rating
- What is a Weibull distribution function?
- How statistical data analysis performed using the Weibull distribution function?
- How can the earlier research be used by the Bridge Maintenance Agency decision makers in forecasting the degradation rate of their bridge system?

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To register, view detailed presenter biographies, and see other learning opportunities, please visit:
www.halfmoonseminars.org

or call our Customer Service Department at (715) 835-5900

Basic Tunnel Design and Cost Analysis

Friday, October 15, 2021 | 1:30 - 6:00 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:

- Preference of selection of tunnel over bridges, etc.
- Illustration of different tunnel sections
- History of US highway and railroad tunnels
- Comparison of infrastructure life: underground vs. above-ground
- What are the main problems of existing tunnel structures in the United States and abroad?
- Illustration of tunnel pictures under different conditions and discussion
- Why is water leakage the main problem for underground tunnels?
- How to mitigate the water leakage problem for underground tunnels
- Basic types of highway and railroad tunnel construction in common use
- Cut and cover: bottom up and top down methods
- Basic concept of life cycle cost analysis

21 USBTLDC A 10 15 WEBR LH

Advanced Tunnel Life Cycle Cost Analysis

Friday, October 22, 2021 | 1:30 - 6:00 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 tunnel life cycle cost analysis?
- What are other contributing factors in selection of tunnel apart from life cycle cost analysis?
- Condition of our existing old famous tunnels who have passed their life cycle period
- Need and applications of life cycle cost analysis (LCCA)
- Features of LCCA
- Life-cycle cost model
- LCC methodology
- Limitations of LCCA
- Future work for upgradation of highway and railroad tunnel technology
- Various costs of LCCA
- A sample calculation of life cycle cost (LCC) of a typical tunnel
- Maximizing the infrastructure investment values using LCCA

21 USATLCCA 10 22 WEBR LH

Webinars 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 is providing professional development hours for professional engineers and land surveyors for more than a decade.

Infrastructure: Structural Analysis and Sustainability

Tuition: \$200 per registrant per webinar,
\$300 per registrant when you attend both webinars

Total Series Credits:

Professional Engineers: 8.0 PDHs Architects: 8.0 HSW CE Hours
AIA: 8.0 LU | HSW

Innovative Structural Analysis Methods to Avoid Failures

Friday, October 29, 2021 | 1:30 - 6:00 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:

- Define different types of structures?
- What are “fracture critical” and “fatigue prone” details in a structure and what are their significance?
- Why do structures fail during their service life?
- Discussion of different methods of structural analysis
- Illustrative pictures of failures of different types of structures and discussion
- Illustrative videos of failures of different types of structures and discussion
- Discussion of various topics, such as basic structural analysis of beam, column, truss, frames etc. and their combinations
- The analysis includes loading, shear force, bending moment, slope and deflection diagrams along with discussion regarding behavior of structure under static and dynamic loading
- Selection of appropriate structural analysis methods to avoid failures of structures with real life examples
- Why is it imperative to do at least 5 to 10 percent of the analysis and design work manually to verify the mechanized computer work?
- Innovative methods to quickly analyze a complex structure to avoid blunders in structural analysis with real life examples
- Discussion of scope of future research of structural analysis of structures for further advancement

21 USISAMAF 10 29 WEBR LH

Significance of Sustainable and Resilient Critical Infrastructure Systems

Friday, November 5, 2021 | 1:30 - 6:00 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 exactly is infrastructure?
- What is the classification of infrastructure?
- What do we mean by sustainable infrastructure?
- What do we mean by resilient infrastructure?
- What is the problem with our old/existing infrastructure with reference to sustainability and resiliency?
- What is critical infrastructure and what are its divisions?
- Why our structure should be sustainable as well as resilient
- How a lack of resilient infrastructure harms society and firms?
- What are the five pillars of sustainable development?
- What are the recommendations to address the obstacles of resilient infrastructure?

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