



COURSE NUMBER

FHWA-NHI-130081

COURSE TITLE

LRFD for Highway Bridge Superstructures - (NEW 4-Day ILT)

This updated course describes Load and Resistance Factor Design (LRFD) for steel and concrete highway bridge superstructures. It provides a combination of instructor-led discussions and workshop exercises. The course also includes LRFD theory applied to design examples and illustrates step-by-step LRFD design procedures. The curriculum follows the AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 (AASHTO LRFD), including the approved 2015 Interims. The training includes the extensive use of student exercises and example problems to demonstrate overall design, detailing, and construction principles addressed in the reference materials. It affords hands-on experience in LRFD design and detailing of highway bridge superstructures. The curriculum materials are comprised of a comprehensive reference manual (FHWA Publication No. FHWA-NHI-15-047), lecture and workshop exercises intended to promote or enhance a working knowledge of AASHTO LRFD, and a participant workbook for lecture notes and exercises.

The curriculum includes the following major topics:

- *Generals superstructure design considerations
- *Preliminary design concepts for steel I-girder superstructures
- *Steel I-girder design
- *Preliminary design concepts for prestressed concrete superstructures
- *Prestressed concrete I-girder design
- *Spliced prestressed concrete girder bridges

OUTCOMES

Upon completion of the course, participants will be able to:

- Describe the bridge superstructure design and construction process in accordance with the current AASHTO LRFD specifications.
- Apply the appropriate current AASHTO LRFD specification articles dealing with selection of bridge type, size, and location.
- Apply the appropriate current AASHTO LRFD specification articles dealing with bridge economics.
- Apply the appropriate current AASHTO LRFD specification articles dealing with bridge materials.
- Describe the appropriate current AASHTO LRFD specification articles dealing with evolution of bridge design codes.
- Apply the appropriate current AASHTO LRFD specification articles dealing with bridge loads and load combinations.
- Apply the appropriate current AASHTO LRFD specification articles dealing with structural analysis.
- Apply the appropriate current AASHTO LRFD specification articles dealing with concrete bridge superstructure design.
- Apply the appropriate current AASHTO LRFD specification articles dealing with steel bridge superstructure design.
- Demonstrate the use of the current AASHTO LRFD specification requirements for superstructure design through the completion of step-by-step procedures, participant exercises, and design examples.

TARGET AUDIENCE

This course has been developed for the needs of practicing public and private sector structural engineers with one to ten years of experience. The primary audience is Agency and consultant structural designers. Pre-training Competencies: Individuals attending this course should have a minimum BSCE degree and should complete the Web-based Training Course NHI-130081P prior to the first day of class. They should also have a working knowledge of the current AASHTO LRFD and should have relevant design experience using this specification on at least one bridge superstructure.

TRAINING LEVEL: Intermediate

FEE: 2017: \$1250 Per Person; 2018: N/A

LENGTH: 4 DAYS (CEU: 2.5 UNITS)

CLASS SIZE: MINIMUM: 20; MAXIMUM: 30

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