

**Monday, May 13, 2019**  
*(Workshop begins at 8:00 a.m. and ends at 4:30 p.m.)*

**PART A: TIMBER BRIDGES**

**INTRODUCTION**

- Terminology
- Materials
- Components
- Loadings

**WOOD MECHANICS**

- Properties of wood
- Behavior of wood
- Wood deterioration
- Species and grades
- Wood connectors

**LOAD RATING**

**BRIDGE INSPECTION METHODS**

- Visual
- Non-destructive testing

**BRIDGE INSPECTION**

- Organization
- Records
- Frequency
- Deck/Timber
- Substructure
- Details

**Tuesday, May 14, 2019**  
*(Workshop begins at 8:00 a.m. and ends at 4:30 p.m.)*

**PART A: TIMBER BRIDGES (CON'T)**

**MAINTENANCE & REHABILITATION**

- Deck, Open/Ballast
- Walkways/Railings
- Stringers
- Caps
- Piles and Posts
- Substructure

**PART B: STEEL BRIDGES**

**INTRODUCTION**

- Terminology
- Materials
- Components
- Loadings

**PROPERTIES OF STEEL**

**LOADS AND RATING**

**FATIGUE AND CORROSION**

**FASTENERS**

**BRIDGE COMPONENTS AND TYPES**

- Decks
- Rolled Beam Bridges
- Deck Plate Girders
- Floor Systems
- Through Plate Girders
- Trusses

**Wednesday, May 15, 2019**  
*(Workshop begins at 8:00 a.m. and ends at 1:00 p.m.)*

**PART B: STEEL BRIDGES (CON'T)**

**BRIDGE INSPECTION**

- Frequency
- Substructure
- Details

**Piers & Abutments**

**MAINTENANCE & REHABILITATION**

**PART C: CONCRETE BRIDGES**

**INTRODUCTION**

- Terminology
- Materials
- Components

**CONCRETE DETERIORATION**

**BRIDGE COMPONENTS AND TYPES**

- Reinforced Concrete Bridges
- Prestressed Concrete Bridges
- Abutments and Piers
- Masonry Arches

**15 PDHs (Professional Development Hours) are available for those completing the course.**

**All attendees who successfully finish the course receive a certificate of completion.**

The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status.

**Call 865-974-5255**  
**if you are interested in**  
**hosting the course in your area.**  
**[ctr.utk.edu/ttap](http://ctr.utk.edu/ttap)**



# RailRoad Bridge Inspection

**May 13-15, 2019**  
**Knoxville, TN**

THE UNIVERSITY OF  
**TENNESSEE**  
KNOXVILLE 

CENTER FOR  
TRANSPORTATION RESEARCH

## Objectives and Benefits

- Present and describe bridge terminology and functions of bridge components.
- Present bridge inspection procedures and a format for documentation of the inspection process.
- Acquire an understanding of the basic maintenance and rehabilitation practices.

## Date & Location

**May 13-15, 2019 (Knoxville, TN)**

NTRC (2nd floor meeting room)  
2360 Cherahala Blvd.  
Knoxville, TN 37932  
Tel: 865-946-1500 for directions

## Who Should Attend?

Persons having bridge inspection and maintenance responsibilities at shortline, regional, and Class I railroads; railroad contractors and consultants; and state and local government officials associated with railroad operation, finance, and regulation will find this workshop beneficial.

## Fee

The course registration of \$615 includes course materials and refreshments. Registration fees must be received at least two weeks prior to workshop to guarantee your place in the class. Attendees are responsible for meals and lodging. Registrants will be provided information on available lodging in the course vicinity.

## Cancellation

**If you cannot attend, notification by April 29, 2019 required.** You may enroll a substitute at any time before the course starts. There will be no refunds for no-shows.

## Limited Enrollment

To insure that the facilities will comfortably accommodate all participants, this workshop will be limited to 30 participants.

## Instructors

### Richard M. Bennett, Ph.D., P.E.

Richard M. Bennett is a Professor of Civil and Environmental Engineering and Director of Engineering Fundamentals at the University of Tennessee, Knoxville, where his specialty area is structural engineering. He has won numerous teaching awards, and has been teaching timber and steel bridge inspection for over 20 years. He works closely with the Tennessee Forest Products Center, particularly in the area of nondestructive evaluation of wood. Dr. Bennett is a member of American Society of Civil Engineers. He is a licensed professional engineer in Tennessee.

### David B. Clarke, Ph.D., P.E.

Dr. Clarke, is the Director of the Center for Transportation Research. He is a research associate professor in the Department of Civil and Environmental Engineering at the University of Tennessee. His over 30 years of experience encompass a variety of railroad related design, inspection, research and education. He has taught railway related courses including this one, to college students and professionals since 1990. As a practicing civil engineer, Dr. Clarke performs railroad bridge inspections and develops plans and specifications for bridge rehabilitation or repair. Dr. Clarke is a licensed civil engineer in South Carolina and Tennessee and is active in AREMA, ASCE, and TRB.

Register online, mail or fax registration to:

### Rail Training (Attn: Diana Webb)

Center for Transportation Research  
The University of Tennessee  
309 Conference Center  
Knoxville, TN 37996-4133  
Tel: (865) 974-5255 Fax: (865) 974-3889  
ctr.utk.edu

## RailRoad Bridge Inspection Knoxville, TN• May 13-15, 2019

Name \_\_\_\_\_

Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_

Tel \_\_\_\_\_ Fax \_\_\_\_\_

Email \_\_\_\_\_

### Payment of \$615 by (choose one):

\_\_\_ Check payable to The University of Tennessee

\_\_\_ Bill/Invoice my organization

\_\_\_ Credit Card: \_\_\_ Visa \_\_\_ MasterCard

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