

# Agenda (May 14-16, 2025)

*(Workshop begins at 8:00 a.m. and ends at 5:00 p.m. each day. On the third day, the workshop ends at noon)*

Overview and introduction

Design controls

Track location

Track engineering

- Track structure
- Loads
- Track behavior
- Stress analysis
  - Rail
  - Crossties/fasteners
  - Ballast
  - Subgrade

Basic geometric design

- Cross Section
- Horizontal alignment
  - Curves
  - Spirals
  - Superelevation

• Vertical alignment

- Grades
- Vertical curves

Advanced geometric design

- Turnouts and track crossings
- Track junctions
- Yard and terminal layout
- Capacity and operational considerations

Rail-highway grade crossings

Railway structures

Drainage

Review and wrap-up

# Railroad Track Design

May 14-16, 2025  
Knoxville, TN

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Call 865-974-5255 if you are  
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CENTER FOR  
TRANSPORTATION RESEARCH

## Overview

This 2 and 1/2 day class addresses the design of railroad track, including horizontal and vertical alignment, cross section, turnouts and crossings, component selection, earthwork, drainage, and clearances. The design approaches highlight applicable AREMA recommendations and general industry practices. The attendee will learn how traffic characteristics and operational requirements affect design. The coverage distinguishes between high-speed, conventional, rapid transit, and light-rail systems. The course includes examples that showcase and help the student understand typical design procedures.

## Date & Location

**May 14-16, 2025 (Knoxville, TN)**

ORNL Hardin Valley Campus  
(Formerly known as NTRC)  
2nd floor meeting room  
2360 Cherahala Blvd.  
Knoxville, TN 37932  
Tel: 865-946-1500 for directions.

## Who Should Attend

Personnel who have responsibility for Construction, Track Design or Maintenance from short-line, regional, and Class I railroads; railroad contractors and consultants; state and local government officials associated with railroad operation, finance and regulation. This course does include engineering content and basic math skills are needed.

## PDHs Available

15 Professional Development Hours (PDHs) are available for those completing the course. All attendees who successfully finish the course receive a certificate of completion.

## Fee

The course registration of \$825 includes course materials. Registration fees must be received at least two weeks prior to the workshop to guarantee your place in the class.

Attendees are responsible for meals and lodging.

## Cancellation Policy

If you cannot attend, two weeks notification before the workshop is required. You may enroll a substitute at any time before the course starts. There will be no refunds for no-shows.

## Limited Enrollment

This workshop is limited to 30 participants.

## Instructor

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

Dr. Clarke, Research Professor and former Director of the University of Tennessee's Center for Transportation, brings nearly 40 years of experience encompassing a variety of railroad design, inspection, research and education activities. As a licensed civil engineer, Dr. Clarke prepares specifications and designs for railroad track construction and maintenance. He has taught railway related courses including this one, to college students and professionals since 1990. He is active in Railroad related design activities and knows the Industry standards for Design. He has taught internationally. He is active in railroad related committees of AREMA, ASCE and TRB.

## Register online Rail Training

Center for Transportation Research  
The University of Tennessee  
309 Conference Center  
Knoxville, TN 37996-4133  
Tel: (865) 974-5255

## Railroad Track Design May 14-16, 2025 (Knoxville, TN)

**REGISTRATION FEES: \$825**

Online payment with credit card:

<https://reg137.imperisoft.com/TTAP-UTK/Search/Registration.aspx>

Please call 865-974-5255 if you wish to pay by check.

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