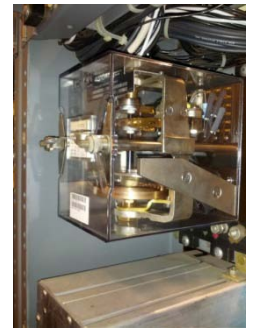


Instructor Guide



100: Orientation Module 1: Introduction to Signaling and Train Control



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Signals Training Consortium Use Only



Icons Used In This Guide

-  **REVIEW** slides
-  **ASK**
-  **CLASSROOM ACTIVITY**
-  **SMALL GROUP ACTIVITY**

-  **INDIVIDUAL ACTIVITY**
-  **WRITE**
-  **MULTIMEDIA**
-  **REFER** participants to

Agenda

Topic #	Topic Title	Duration
1	Overview	30 Minutes
2	Evolution of Signaling	30 Minutes
3	Safety on the Job	30 Minutes
4	Governing Agencies	10 Minutes
5	Principles of Fail Safe	20 Minutes
6	Positive Train Control	30 Minutes
7	Field Trip	60 Minutes
8	Summary	30 Minutes
	Total Time:	240 Minutes



Overview

Purpose The purpose of this module is to:

- provide the participant with an overview to signaling and train control and to introduce the participant to the foundation of their work as a signal maintainer.

Objectives

At the end of this lesson, the signal maintainer trainee will be able to:

- Explain the purpose of a signaling system
- Explain the evolution of railroad signaling
- Specify how signal maintainers are responsible for the safety of the general public
- Identify the importance of Agency and governing location operating rules/policies
- Define “fail-safe”
- Explain why systems have to fail in a safe manner
- Differentiate between vital and non-vital
- Discuss future technologies, such as PTC

Materials

Mandatory Make sure you have the following

- PowerPoint Presentation
- Coursebook
- Quizzes/Quiz Answers
- Pencils
- Internet connection
- Answer Sheet for Class Activity 1
- Pointer

Optional You may also want the following for optional activities:

- Chalk board with chalk, large paper with marker, etc.
- Lab, simulator, etc
- Your agency operating rules for safe inspection and maintenance
- Book: *Introduction to North American Railway Signaling* or Appendix 1



Module Length: 240 min

Time remaining: 240 min

This section: 30 min (9 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



REVIEW slides

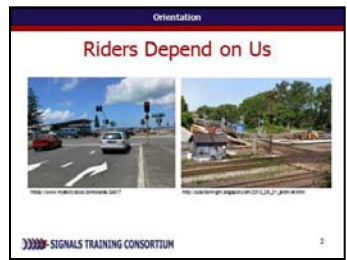
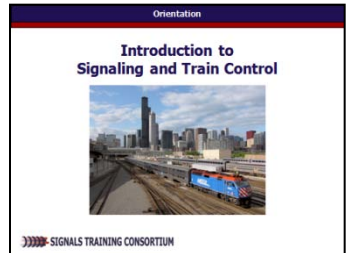
Instructor's Notes

In your own words:

Welcome to the introductory course on signaling and train control. **Advance Slide.**

Just like on roads for cars – rail roads have many different tracks (or lanes) with varying numbers of cars moving in countless directions simultaneously. Some cars are going straight, perpendicular to other roads. Some cars will need to turn, while ensuring that collisions do not occur. Just like on a highway/street system, there are many systems working together to ensure that the entire network keeps moving smoothly. With rail roads, the main systems are signaling and train control. **Advance Slide.**

✓ PPT slides 1, 2





Module Length: 240 min

Time remaining: 240 min

This section: 30 min (9 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



REVIEW slides

Instructor's Notes

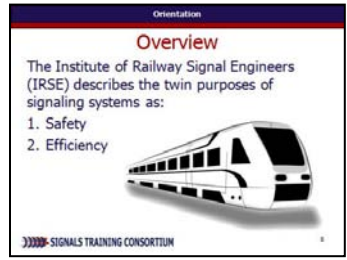
In your own words:

The Institute of Railway Signal Engineers (IRSE) describes the twin purposes of signaling systems as:

The purpose of a signaling system is to facilitate the safe and efficient movement of trains on the railroad. Safety and efficiency do not always sit easily with each other. The fundamental safety requirements of a signaling system include keeping trains adequately separated from each and stopping (or slowing) trains where necessary to avoid potentially unsafe situations.

Continued – stay on slide 8.

✓ PPT slide 8





Module Length: 240 min

Time remaining: 240 min

This section: 30 min (9 slides)

Section start time: _____

Section End Time: _____

DO

SAY

Materials Needed



REVIEW slides

Instructor's Notes

In your own words:

Efficient operation of the railroad, on the other hand, is mainly about sending as many trains as possible along a given portion of track, as quickly as possible, using the minimum of infrastructure. The main function of a signal system is therefore to set up a route for the passage of each train over the track that it is to traverse, authorize the train operator to make the movement, maintain the route while making its movement, and finally release the route (for use by other trains) after the passage of the train.

Signal maintainers develop their craft through learning on the job as well as through training programs sponsored through their employer and union. They are schooled in the stringent federal, state, and local regulations which govern railroad signal systems and, in railroad operations, including topics on electricity, electronics, and mechanics. **Advance Slide.**

✓ PPT slide 8

