

Railway Management Course: Learning Objectives

General Topic Area: Week 1	Terminal Objective	Enabling Objectives <i>The participant will be able to:</i>
Industry History and Safety	The participant will be able to explain the history and development of North American Railroads.	<ul style="list-style-type: none"> • Identify the role of western expansion in railroad development • Identify historical methods of financing rail operations • Identify key forces in rail economics • Identify key technologies that led to rail expansion • Interpret safety data • Identify roles of government agencies • Identify human factor issues that impacted rail development
Labor-Management Relations	The participant will be able to identify key issues in railroad labor-management relations	<ul style="list-style-type: none"> • Analyze railroad capital and operating expenses • Identify methods for achieving increased productivity • Identify various unions and their role in rail operations • Explain collective bargaining practices in the rail industry
Service Management	The participant will be able to identify basic issues related to service management in the rail industry	<ul style="list-style-type: none"> • Identify the reasons for resource scheduling • Identify the components of the quality process • Explain how computer systems are designed and implemented • Explain links among train scheduling, crew scheduling, and fatigue issues • Identify ways in which train scheduling facilitates the interchange process • Identify methods for aligning operating tactics with strategy
Industry Structure	The participant will be able to explain how the different modes of transportation relate to one another	<ul style="list-style-type: none"> • Identify the ways in which the government and private sector influence various modes of transportation • Identify current strategies to deal with congestion and maintenance • Examine shippers' needs for service and how the various modes meet those needs • Identify the role of the individual in providing service in modes of transportation other than rail
Regulation	The participant will be able to explain the ways in which regulation impacts rail operations	<ul style="list-style-type: none"> • Identify key historical trends in rail regulation • Identify common carrier obligations • Identify rules associated with rate making • Identify the impacts of differential pricing
Industry Organization	The participant will be able to identify key elements of rail organization	<ul style="list-style-type: none"> • Identify the impact of mergers and abandonments on rail operations • Identify merger patterns that have occurred throughout history • Identify industry players and their service profiles

General Topic Area: Week 2	Terminal Objective	Enabling Objectives <i>The participant will be able to:</i>
Technology Development	The participant will be able to identify how the development of technology has impacted rail operations	<ul style="list-style-type: none"> • Identify risks and benefits of different technologies • Identify key factors in the government's research and development portfolio management • Explain how the government and rail industry interact in implementing railroad research and development
Infrastructure	The participant will be able to identify key elements associated with infrastructure maintenance	<ul style="list-style-type: none"> • Identify the trade-offs that are possible for all elements of railway infrastructure • Interpret safety statistics related to Track Class and speeds • Explain the difference between visual and automated inspections • Explain how heavy axle loading cuts across multiple rail departments • Identify techniques for scheduling MOW windows on capacity constrained lines
Rolling Stock	The participant will be able to identify critical issues related to railroad rolling stock	<ul style="list-style-type: none"> • Identify considerations in locomotive fleet acquisition and assignment • Explain improvements that have occurred in train braking • Explain trade-offs associated with safety regulations • Explain how assembly of trains affects how and whether they make it over the road • Explain methods of powering locomotives and how each method affects fuel economy and global warming • Explain the components of freight cars and the principles of railcar dynamics • Explain how hazardous materials responders are trained • Explain steps being taken to make passenger cars and locomotives safer • Identify how the condition of rail cars is monitored • Explain AAR interchange agreements • Explain how the AAR certifies rail components
Train Control	The participant will be able to identify methods for controlling trains	<ul style="list-style-type: none"> • Explain the fundamentals of signaling systems • Explain how the FCC allocates frequencies • Identify ways in which FRA enforcement impacts railway operations • Explain how PTC systems can improve safety, efficiency and security • Identify ways in which new PTC regulations can affect the implementation of PTC systems
Technology Futures	The participant will be able to identify how R & D priorities are implemented	<ul style="list-style-type: none"> • Explain how R & D topics are selected • Explain how the findings are implemented • Explain the mechanisms for influencing the implementation of new technologies on railways

General Topic Area: Week 3	Terminal Objective	Enabling Objectives <i>The participant will be able to:</i>
Customer and Shipper Focus	The participant will be able to explain the perspective of shippers related to rail operations	<ul style="list-style-type: none"> • Identify costs and customer expectations • Explain how UPS views and deals with railways • Identify the factors that drive shipper decisions on transport • Estimate demand, cost to serve, and benefits from a service package • Explain how third party logistics organizations influence the behavior of shippers
Company and System Financials	The participant will be able to explain issues associated with company and system financials	<ul style="list-style-type: none"> • Identify the importance of various financial measures in assessing railway performance • Explain the importance of strategic planning in setting capital and operating budgets • Identify appropriate measures for evaluating projects and their implementation • Explain the financial advantages and disadvantages of leasing versus ownership • Examine new technologies and the feasibility of the implementation
Public/Private Issues	The participant will be able to explain how public/private partnerships can impact rail operations	<ul style="list-style-type: none"> • Explain whether and under what circumstances passenger rail service can coexist with privately-provided freight service • Explain how urban transit systems analyze and operate their systems • Identify specific Public/Private Partnerships in the rail industry and how they operate • Explain how PPP's became popular
Mergers and Institutions	The participant will be able to identify issues associated with railway mergers	<ul style="list-style-type: none"> • Identify ways in which executive management must resolve conflicting goals and priorities • Explain the relationship between Class 1's and Short Lines • Explain what drives mergers and when are they applied • Develop skill sets to enable staff work for mergers, acquisitions, or other major capital projects • Identify methods for ameliorating railway liability, damages and judgments
Company Leadership	The participant will be able to identify key traits of an effective railway company leader	<ul style="list-style-type: none"> • Identify challenges facing the company and industry • Explain how to balance the interests of shareholders in the short-term and the long-term

General Topic Area: Week 4	Terminal Objective	Enabling Objectives <i>The participant will be able to:</i>
Network Analysis	The participant will be able to analyze the network for his/her company	<ul style="list-style-type: none"> • Explain the mathematics of network flows and the impact on railway operations • Explain how Sussman's Thirty Key Points can provide guidance in the investment, operation, and use of transportation systems • Explain the techniques for analyzing and predicting network performance • Explain the interrelationships of capacity, running time, unanticipated delays and service reliability • Explain how organizing for a scheduled operation can assist in the management of unexpected situations
Railroads and Government Agencies	The participant will be able to explain how government agencies impact railway operations	<ul style="list-style-type: none"> • Identify the role of the U.S. Congress in regulating the rail industry • Identify the role of various federal agencies in regulating the rail industry • Identify the role of various state agencies in regulating the rail industry
Leadership Development	The participant will be able to describe the main characteristics of strategic and tactical leadership	<ul style="list-style-type: none"> • Identify the role of leadership within their specific organization • Explain the differences between tactical and strategic leadership and their areas of interdependence • Identify critical elements of leadership and their importance in organizational success • Report on common leadership styles and the benefits of each style as it relates to the overall health of organizations.
International and Future Outlook	The participant will be able to explain how the evolving global economy will impact rail operations	<ul style="list-style-type: none"> • Explain the impact that privatization has had on international rail operations • Explain how foreign railways are responding to changing markets • Explain how foreign railways are changing their roles in relation to governments • Explain the pressures that railway managers will face in the future • Explain the knowledge and skills that will be required of future railway managers
Energy, Environment and Security	The participant will be able to explain how specific regulatory issues will impact rail operations	<ul style="list-style-type: none"> • Explain the impact of global climate change on rail operations and what, if anything, can be done about it • Identify how the use of alternative fuels might affect rail operations • Explain how government environmental policy will impact rail traffic and motive power • Identify new legislative approaches to the regulation of hazardous materials transportation • Explain how the implementation of new hazardous materials regulations would impact rail operations • Identify the security systems that railways have in place • Explain what additional security systems will be required in order to ensure the security of operations