

Return Path Operations

OVERVIEW

This course introduces the basic concepts of return path functions and outlines procedures for testing, repairing and maintaining a viable return path for the support of new revenue sources and services. The student will learn what affects the return path performance, including ingress, laser clipping, noise, proper system alignment and installation of equipment at the customer premises. The course also demonstrates how high-speed data, PPV, VOD, telephony and other services rely on a proper return path operation via the broadband HFC network.

Delivery Options:

📖 Learning takes place using a textbook. Lesson and final exams are taken online.

Completion Time:

Varies based on the student's self-study pace, however, the maximum time allowed is six months from enrollment.

BENEFITS

Upon completion students will:

- » gain the knowledge to provide upstream troubleshooting
- » maximize revenue by maintaining peak performance levels of set-top equipment
- » improve customer satisfaction levels with premises equipment
- » help speed the rollout of new services specific to the return path
- » use this course to help prepare for SCTE's Broadband Distribution Specialist, Broadband Transportation Specialist and Broadband Communications Technician/Engineer Category IV
- » receive an industry recognized Jones/NCTI™ certificate of graduation

Ideal for:

Personnel who install services, perform demand or preventive maintenance on the coaxial plant or work on the fiber-optic portion of modern HFC networks. This includes:

- » service technicians
- » high-speed data technicians
- » installers
- » network technicians

COURSE OBJECTIVES

Upon completing this course, students will be able to:

1. describe the return path signal flow and major transmission elements
2. explain the concept of long-loop automatic gain control and how it is used to establish RF levels from cable modems, set-top terminals and network interface units
3. explain the concept of funneling on the return path and its effects
4. discuss procedures for improving overall return path performance, including use of high-pass filters and step attenuators
5. explain how test equipment for return path alignment can measure field levels

(Continued)

RELATED COURSES

Students completing this course should then enroll in:

- » Installer
- » Broadband Digital Installer
- » Installer Technician
- » Service Technician
- » System Technician
- » Fiber Installation and Activation
- » Fiber Testing and Maintenance

TRAINING FEATURES

- » Knowledge-based, broadband and job-specific content
- » Highly illustrated and easy to read course materials
- » Curriculum advising
- » 24/7 lesson feedback and progress monitoring at www.jonesncti.com
- » Online testing

Visit www.jonesncti.com/coursepolicy.htm for important information on computer hardware/software requirements and student-to-student transfer and extension limitations



Workforce Performance Solutions™

COURSE OBJECTIVES *(Continued)*

6. discuss the differences, advantages and disadvantages of single carrier, multicarrier and return sweep testing
7. define and discuss upstream transmit level and attenuation
8. explain how zero span is used on the return path for transient signal and noise measurements
9. describe the concepts of laser clipping and noise funneling and how they affect signals carried on the return path
10. identify methods for multiplexing multiple return paths into a single fiber, including frequency stacking, wavelength division multiplexing, dense wavelength division multiplexing and digital return

COURSE OUTLINE

1. Return Path Operations Overview

Understanding signal flow in the return path, learning what can go wrong and maintaining the return path

2. Introducing Return Path Fundamentals

Learning return path fundamentals, explaining how the reverse path works, examining effects of the drop system on reverse signals, assessing the quality of the drop's return path and installing two-way devices at the customer premises

3. Troubleshooting the Return Path

Examining return path impairments on the drop system, understanding sources of return path impairments, troubleshooting methods and tools and optimizing return path performance

4. Maintaining Return Path Signals

Explaining the theory of reverse levels, setting levels in the return path and balancing the return path

5. Measuring Signals in the Return Path

Transmitting and measuring return path signals

6. Examining the Optical Return Path

Designating major components in an optical return system, identifying optical performance parameters and accomplishing node scalability through return path multiplexing



Workforce Performance Solutions™

For more information call 866.575.7206 or email sales@jonesncti.com
9697 East Mineral Ave. • Centennial, CO 80112 • www.jonesncti.com