

## Introduction to Ethernet Testing

This two-day course provides detailed information on the Ethernet technology and its test applications using EXFO's Ethernet test modules, covering the functionalities and features of each module. This training session discusses both theoretical and practical aspects.

### Content

#### Part 1: Theory of Ethernet Technology and Testing

- › History
- › Datacom technology overview
  - › Ethernet (10Base-T, CSMA/CD, half-duplex, full-duplex)
  - › Fast Ethernet (100Base-T, auto-negotiation)
  - › Gigabit Ethernet (1000Base-T)
- › EtherSAM
- › Pre-defined Ethernet frame sizes (RFC 2544)
- › Throughput, burstability, frame loss and latency (RFC 2544)
- › RFC 3393 (jitter)
- › RFC 791 (Internet Protocol v.4) and RFC 2475 (service differentiation)
- › Error performance-monitoring system (EPMS – G.821 and G.826)
- › Virtual local-area networks (VLANs – IEEE 802.1 Q/p and IEEE 802.1 Q-in-Q)
- › Service-disruption measurements
- › Bit-error-rate (BER) testing
- › Multistream generation application
- › 10 Gigabit Ethernet protocol
- › LAN and WAN PHY

#### Part 2: Ethernet Testing Applications

- › Ethernet networks – what to test and how to test them
- › Performance analysis (RFC 2544)
- › BER testing (layer 1 and layer 2)
- › Dual test sets/Smart loopback
- › Frame analysis
- › TCP throughput
- › Expert mode
- › Scripting

### Pre-Requisites

- › Basic comprehension of physics and mathematics
- › Basic knowledge of telecommunications
- › Basic understanding of Ethernet technology

### Methodology

The first part of this course consists of lectures using PowerPoint presentations and demonstrations, while the second part consists of specific hands-on testing exercises.

**Typical Schedule** (can be modified to accommodate attendees' working schedule)

#### INTRODUCTION TO ETHERNET TESTING

<b>8:00 a.m. to 12:00 p.m.</b>	Part 1: Theory › Ethernet technology and testing › EXFO product interface
<b>12:00 p.m. to 1:00 p.m.</b>	Lunch
<b>1:00 p.m. to 5:00 p.m.</b>	Part 2: Hands-On Session › Ethernet testing applications

### Documentation

Attendees will receive a binder containing copies of presentations and other printed handouts, if applicable. When available, a CD containing the electronic version (PDF format) of the presentation, as well as related application notes, will also be provided.

EXFO Corporate Headquarters > 400 Godin Avenue, Quebec City (Quebec) G1M 2K2 CANADA | Tel.: +1 418 683-0211 | Fax: +1 418 683-2170 | info@EXFO.com

Toll-free: +1 800 663-3936 (USA and Canada) | [www.EXFO.com](http://www.EXFO.com)

EXFO America	3400 Waterview Parkway, Suite 100	Richardson, TX 75080 USA	Tel.: +1 972 761-9271	Fax: +1 972 761-9067
EXFO Asia	100 Beach Road, #22-01/03 Shaw Tower	SINGAPORE 189702	Tel.: +65 6333 8241	Fax: +65 6333 8242
EXFO China	36 North, 3 <sup>rd</sup> Ring Road East, Dongcheng District Room 1207, Tower C, Global Trade Center	Beijing 100013 P. R. CHINA	Tel.: + 86 10 5825 7755	Fax: +86 10 5825 7722
EXFO Europe	Omega Enterprise Park, Electron Way	Chandlers Ford, Hampshire S053 4SE ENGLAND	Tel.: +44 23 8024 6810	Fax: +44 23 8024 6801
EXFO NetHawk	Elektronikkatie 2	FI-90590 Oulu, FINLAND	Tel.: +358 (0)403 010 300	Fax: +358 (0)8 564 5203
EXFO Service Assurance	270 Billerica Road	Chelmsford, MA 01824 USA	Tel.: +1 978 367-5600	Fax: +1 978 367-5700