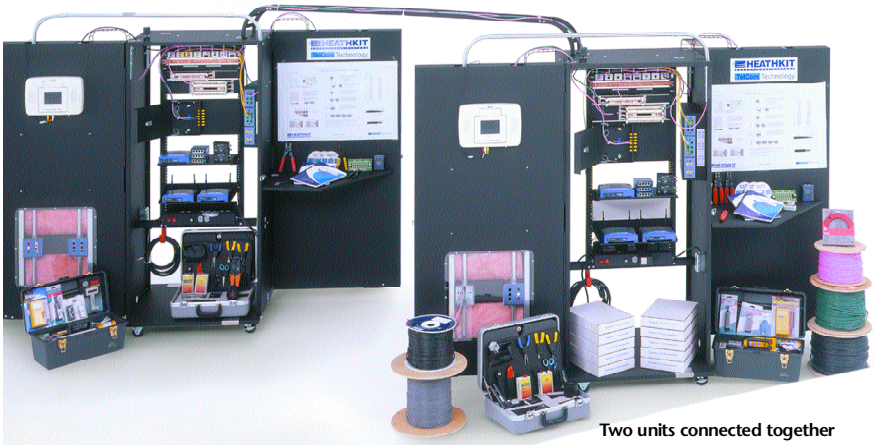

Two units connected together

Practical Network Cabling System
EWS-545

TelCom Technology

From PC technology to network topologies, no communication takes place without properly selected and installed network infrastructure. The Practical Network Cabling System allows your students to gain valuable experience with the physical connectivity necessary to support and maintain a network backbone. From Entrance Facility to Equipment Room to Wiring Closet to Work Area, students plan, pull, punch-down, probe, prove, and improvise network wiring in a clean, safe and controlled environment without ever leaving the classroom. Connect several trainers together with our optional ladder kits and allow your students to send data between trainers, simulating local (LAN) and wide (WAN) area networks. The EWS-545 is completely mobile; roll it into any classroom and it sets up within minutes. At the end of class, simply store the tools and components inside the cabinet, secure the closing doors with locks and roll the trainer away. The Practical Network Cabling System will provide your students with hours of challenging and useful training, transforming network – wiring skills into employer - hiring skills.

System Components

- Equipment Room with 19" Equipment Rack
- AC Power Supply with Circuit Breakers
- Belkin and Siemon Patch Panels
- 210 and 110 Punchdown Steel Panels
- 4-Port Hubs with BNC (3)
- Linksys Wireless Access Points (2)
- Linksys Router/Switch
- LinkRunner
- Color Camera and TV
- Copper and Fiber Tool Kits
- Copper and Fiber Student Consumable Parts Packs (For 6 Students)
- Textbooks and Workbooks (For 6 Students)
- Instructor's Guide
- CD's, Videos and Posters

Optional Support Material

Instructor Support Module (ISM)
EWS-545-90

- Time Frame (Lecture and Lab)
- Material Required for Lecture
- Material Required for Each Lab Station
- Material Covered (Required Support Material and Associated Reading Assignment)
- Course Objectives
- Presentation (PowerPoint and .html versions with speakers notes)
- Lab Session

Classroom Hours

90 hours

Prerequisites

None

HEATHKIT EDUCATIONAL SYSTEMS

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Practical Network Cabling System

Hands-On Experiments

Module 1 - Copper Connectivity

- A Copper, Fiber and Wireless Network
- Safety and Trainer Familiarization
- Standards, Tools and Parts
- Coaxial Cable Poster
- Twisted-Pair Cable Poster
- Cable Basics, Part 1 - Opens and Shorts
- Cable Basics, Part 2 - Reversals, Transposals and Split Pairs
- Making Unshielded Patch Cables
- Making Shielded Patch Cables
- Learn the LinkRunner
- Analyzing Cables for Faults
- Pulling and Labeling Copper Cable
- Modular Outlets and 110 Punchdown Blocks
- 210 Patch Plug and Modular Jack
- AC, DC, and Resistance Measurements
- DB15 Connectors
- RG6 Coaxial Cable and F Connectors
- RG58 and BNC Connectors - Thinnet
- RG8, N Connectors and Taps - Thicknet

Module 2 - Fiber Optic Connectivity

- Safety and Parts Identification
- Decibels
- Testing a Patch Cable - Part 1
- Testing a Patch Cable - Part 2
- Identifying and Pulling Fiber Optic Cable
- Installing ST Connectors
- Installing Crimp-Style Connectors
- Plastic Fiber and the MT-RJ
- Splicing Fiber Cable

Module 3 - The Equipment Room (ER)

- Making a Crossover Patch Cable
- Interconnecting Hubs and Switches - Part 1
- Interconnecting Hubs and Switches - Part 2
- The Bus Topology
- The Star Topology
- Wiring Rooms and Cross-Connections
- Wireless Security
- Attenuation and NEXT
- Crosstalk
- Return Loss, Propagation Delay and Delay Skew
- ACT and the Time Domain Reflectometer
- Closed Circuit TV
- Network 1 - Design
- Network 1 - Troubleshooting
- Network 2 - Install and Test - Part 1
- Network 2 - Install and Test - Part 2
- Troubleshooting
- Identify numerous connectors used in copper cabling

Course Objectives

- Identify various coaxial and twisted-pair copper cables used in today's computer networks
- Identify and know how to use the tools associated with copper cabling
- Understand and describe the basic network topologies
- Understand the purpose and operation of cabling rooms and cross-connects
- Understand the importance and dangers associated with network and power grounds (earthing)
- Install common connectors onto shielded and unshielded twisted pair cables
- Install various connectors and taps onto coaxial cables
- Identify numerous blueprint symbols
- Define common fiber optic terms and understand how they pertain to light and fiber optics
- Identify fiber optic tools, cables, and connectors
- Understand the importance of safety when working with or around fiber optic materials
- Describe the operation of fiber optic tools
- Describe the internal makeup of various fiber optic cables
- Explain the proper procedures and cautions pertaining to fiber optic cable installation
- Install various fiber optic connectors on glass fiber optic cables
- Install fiber optic connectors on plastic fiber optic cable
- Make mechanical splices on glass fiber optic cables
- Test and troubleshoot fiber optic cables and systems using light sources and power meters
- Explain the basic function and use of an OTDR, and how to generally test a fiber optic system
- Describe the basics of installing a fiber optic system and what major problems to look out for
- Describe special applications for optic fibers; How they can be used for specialized applications and in bundles
- Create and operate a local area network using both copper and fiber optic components
- Properly install equipment and components onto a 19" rack in an equipment room
- Understand the purpose of crossover cables and how to use them

Course Objectives (continued)

- Use the Fluke LinkRunner and DSP-4300 testers
- Understand and know how to test for NEXT, ACR, ELFEXT, Propagation Delay, Delay Skew and Return Loss
- Design, install and troubleshoot LANs using copper cables, fiber optic cables, wireless devices, hubs and routers, and modern test instruments

Support Materials and Consumables*

EB-545	Cabling Textbook (Set of 2)
EB-545-C	Copper Textbook
EB-545-F	Fiber Textbook
EB-545-30CS	Copper Student Consumable Pack
EB-545-30FS	Fiber Student Consumable Pack
EB-545-40	Workbook
EB-545-50	Instructor's Guide
EB-545-90	Instructor Support Module

*Support materials and consumables for 6 students included with EWS-545 order. EB-545-90 sold separately.

Optional Additional Accessories

ETW-545-02	Equipment Room Hardware (to populate Equipment Room - Side 2)
ETW-545-03	6' Ladder with Elbows and Hardware
ETW-545-04	6' Ladder Extension with Hardware
ETW-545-05	Fluke DSP-4300 Certification Meter
MVT-545	Microscope and Video Converter System