Remote Delivery of Hands-on Networking Courses Using Zoom

Hi-Tec National Conference 2019

North Arkansas College
WHY REMOTE DELIVERY?

- Northark needs to produce more IT Networking graduates to meet area, regional, and state needs - based on information from Northark’s BILT, the Arkansas Department of Workforce Services, and the Bureau of Labor Statistics.

- Rural residents need opportunities for high tech degrees that lead to employment
  - Arkansas is typically next to last in both educational attainment and per capita income
  - Even higher poverty rates in Northark’s service area, especially for women and Hispanics
WHY REMOTE DELIVERY?

Existing remote site – the Carroll County Center – doesn’t have enrollment yet to support face-to-face classes.
COURSES DELIVERED REMOTELY 2018-2019

- IT Essentials Hardware
- IT Essentials Software
- Network Fundamentals (CCNA1)
- Routing Protocols & Concepts (CCNA2)

A+ Curriculum
Welcome to Network Fundamentals or CCNA1. This is a 16-week course that is offered each term of the A.A.S degree in Network System and Security Administration.
HOME SITE – Front View
HOME SITE – Back of Room
REMOTE SITE – Front View
ADDITIONAL SUPPORT FOR REMOTE DELIVERY

- Lab assistants
- Simulation software – e.g., Packet Tracer
- Virtual machines
- Virtual labs are an option
- Lecture recording
COST OF OUR SETUP

Assumes that the room is preconfigured with instructor computer, projector, screen and network connectivity

AV (per room)
Includes:
- TV’s - $300/ea including mount
  - Will need some video switching or distribution amps
- Insight (for local lab) – $30/PC initial $66/lab (renewal)
- Zoom - $1,800 for 20 hosts
- Camera/Mic/Speaker Kit - $900
COST OF OUR SETUP

Assumes that the room is preconfigured with instructor computer, projector, screen and network connectivity

Mobile Cart for Remote Site - $3,600
Includes:
- 24U Rack - $600
- 3 Routers (Cisco 1941) - $750
  - HWIC - $450
- 3 Switches (Cisco 2960 – 24 port) - $450
- 3 Laptops - $1200
- Power distribution switch - $50
- Cables - $100
  - Ethernet (RJ-45) straight and crossover patch cables
  - Console cables
CHALLENGES

- Keeping remote students engaged
- Qualified lab help at the remote site
- Logistics: moving supplies back and forth between locations
- Technical Help
  - Updating equipment at remote site
  - Troubleshooting equipment issues
- Room scheduling
- Dependent on remote site facilities and connectivity
FIRST YEAR RESULTS

Fall 2018 at the CCC
- IT Essentials Hardware – two students
- Network Fundamentals (CCNA1) – two students started, three finished

Spring 2019 at the CCC
- IT Essentials Software – two students
- Routing Protocols & Concepts (CCNA2) – three students

All Students Successfully Completed the Courses!
NEXT STEPS

- Additional sites
  - High schools
  - Workplaces

- Improved Zoom Rooms
  - Better audio
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