MASTER SYLLABUS

CITA 221 - DATA COMMUNICATIONS AND NETWORK TECHNOLOGY LAB

Created by: Minhua Wang
Updated by: Minhua Wang
A. **TITLE**: Data Communications and Network Technology Lab

B. **COURSE NUMBER**: CITA 221

C. **CREDIT HOURS**: (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

   # Credit Hours: 1 !
   # Lecture Hours: per week %
   # Lab Hours: 2 per week %
   Other: per week

   Course Length: 15 Weeks

D. **WRITING INTENSIVE COURSE**: No

E. **GER CATEGORY**: None

F. **SEMESTER(S) OFFERED**: Fall/Spring

G. **COURSE DESCRIPTION**: This laboratory course is to accompany the lectures of CITA 220 Data Communications and Network Technology course. Students obtain hands-on experience on data communications and network technology throughout this course.

H. **PRE-REQUISITES/CO-REQUISITES**:

   a. Pre-requisite(s): CITA170 Computer Concepts and Operating Systems, CITA 171 Operating System Use and Administration, and MATH 106 Intermediate Algebra
   b. Co-requisite(s): CITA 220 Data Communications and Network Technology
   c. Pre- or co-requisite(s): none

I. **STUDENT LEARNING OUTCOMES**:

   By the end of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Course Student Learning Outcome (SLO)</th>
<th>PSLO</th>
<th>ISLO</th>
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<tbody>
<tr>
<td>a. Differentiate between straight-through cable and crossover cable configurations</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>5</td>
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<tr>
<td>b. Use terminal programs to configure switches and routers</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
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<tr>
<td>c. Illustrate the main components of network operating systems with Linux and Windows servers</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>5</td>
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<tr>
<td>d. Manipulate ADS / WINS / DNS / DHCP / TCP/IP configurations on Windows servers</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>5</td>
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<tr>
<td>e. Recognize basic network security features on Windows servers</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>5</td>
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</table>
J. **APPLIED LEARNING COMPONENT:** Yes X No
   • Classroom/Lab

K. **TEXTS:** N/A

L. **REFERENCES:** N/A

M. **EQUIPMENT:** Computer networking lab

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**
   • Lab projects
   • Participation

P. **DETAILED COURSE OUTLINE:** N/A

Q. **LABORATORY OUTLINE:**

I. Field trip to observe the SUNY Canton IT network (server room, wiring closet, campus network infrastructure)

II. Structured Cabling: Students build and test cables to set up computer connections in the lab

III. Introduction to Switching: Comparison of repeaters and switches. Students use their cables to set up a LAN

IV. Configuring Cisco Switches

V. Configuring Cisco Routers

VI. Network Operating Systems: Overview of Linux and Windows servers (using VMware)

VII. Configuring Network Protocols and Services: ADS

VIII. Configuring Network Protocols and Services: WINS

IX. Configuring Network Protocols and Services: DNS

X. Configuring Network Protocols and Services: DHCP

XI. Configuring Network Protocols and Services: TCP/IP

XII. Configuring User and Group Accounts

XIII. Configuring Network Security
XIV. Network Monitoring and Analyzing Tools!