STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK

MASTER SYLLABUS

CYBR 440 - NETWORK MANAGEMENT

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SCHOOL OF SCIENCE, HEALTH AND CRIMINAL JUSTICE
DEPARTMENT OF CYBERSECURITY
FALL 2024

A. **TITLE**: Network Management

B. **COURSE NUMBER:** CYBR 440

C. **CREDIT HOURS:** 3
   - 3 hours of lecture per week

D. **WRITING INTENSIVE COURSE**: No

E. **GER CATEGORY:** None

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

G. **COURSE DESCRIPTION:** An advanced study of network management concepts, architectures, protocols, models, tools, systems, and applications. The course concentrates on the implementation of the Simple Network Management Protocol (SNMP). Students are also introduced to the use of the Desktop Management Interface (DMI) standard and Web-based Management.

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

   a. Pre-requisite(s): CITA 220 Data Communications and Network Technology
   b. Co-requisite(s): none
   c. Pre- or co-requisite(s): none

I. **STUDENT LEARNING OUTCOMES:**

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

Course Student Learning Outcome [SLO]	*PSLO*	*ISLO*
a. Summarize the responsibilities of a network manager	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
b. Classify the broad range of network management concepts into manageable descriptions	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
c. Exhibit an NMS that focuses on the fundamentals of network management	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
d. Specify how to access, compile and use MIBs	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
e. Interpret SNMP message formats	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
f. Assemble SNMP, DMI, and Web-based management	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5

J.   **APPLIED LEARNING COMPONENT:**   Yes__X___   No_____
- Classroom/Lab

K.   **TEXTS:** None

L.   **REFERENCES:** Various online resource such as SUNY Canton Library Books24x7 ITPro Book Database

M.   **EQUIPMENT:** Computer lab classroom with virtual machine software installed

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

O.   **SUGGESTED MEASUREMENT CRITERIA/METHODS:**
- Exams
- Quizzes
- Participation

P.   **DETAILED COURSE OUTLINE:**

I. Basics of Network Management
   A. Networking Components
   B. Overview of Network Management
   C. Network Management Strategies
   D. Configuration: Client/Server Components
   E. Configuration: Infrastructure Components

II. SNMP Management
   A. MIB, ASN.1, and BER
   B. SNMPv1
   C. SNMPv2
   D. SNMPv3
   E. RMON1
   F. RMON2

III. Network Management Tools, Systems, and Applications
   A. Network Management Tools and Systems
   B. Network Management Applications
   C. Desktop Management
   D. Web-Based Management

Q.   **LABORATORY OUTLINE:** N/A