A. **TITLE**: Network Management Lab

B. **COURSE NUMBER**: CITA 441

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

G. **COURSE DESCRIPTION**: This laboratory course is to accompany the lectures of CITA 440 Network Management course. Students obtain hands-on experience on various network management tools, protocols, applications, and systems throughout this course.

H. **PRE-REQUISITES/CO-REQUISITES**:
   
   a. Pre-requisite(s): CITA 221 Data Communications and Network Technology Lab
   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:

<table>
<thead>
<tr>
<th>Course Student Learning Outcome [SLO]</th>
<th>PSLO</th>
<th>ISLO</th>
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</thead>
<tbody>
<tr>
<td>a. Illustrate centralized log management</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. Illustrate graphical network management</td>
<td>3. Demonstrate a solid understanding of the methodologies and foundations of IT</td>
<td>5</td>
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<tr>
<td>c. Manipulate SNMP 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>d. Interpret RIP, OSPF, ACL, and IPSEC VPN</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 wireless network management features</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. Centralized log management using syslog

   II. Graphical network management utilizing SNMP and MRTG

   III. A lab review of static routes and RIP

   IV. Lab introduction to Open Shortest Path First (OSPF)

   V. Configuring Standard Access Control Lists

   VI. Configuring Extended Access Control Lists

   VII. Remote network access utilizing an IPSEC VPN client

   VIII. Site to site secure communications utilizing IPSEC VPN tunnels

   IX. Lab introduction to standalone wireless access points

   X. Setting up point to point wireless bridges