A. **Academic Division:** Business, Industry, and Technology

B. **Discipline:** Information Technology - Networking

C. **Course Number and Title:** ITEC1640 – Introduction to Networks (CCENT I)

D. **Course Coordinator:** Jesse Payne  
   **Assistant Dean:** Daniel Wagner

**Instructor Information:**
- **Name:** Click here to enter text.  
- **Office Location:** Click here to enter text.  
- **Office Hours:** Click here to enter text.  
- **Phone Number:** Click here to enter text.  
- **E-Mail Address:** Click here to enter text.

E. **Credit Hours:** 2  
   Lecture: 1 hour  
   Laboratory: 2 hours

F. **Prerequisites:** None

G. **Syllabus Effective Date:** Fall 2019

H. **Textbook(s) Title:**  
   - Provided

I. **Workbook(s) and/or Lab Manual:**

J. **Course Description:** This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced. Students who successfully complete this course will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. This course, together with ITEC1645, prepares students for Cisco’s CCENT certification exam. CTAG: CTIT007

K. **College-Wide Learning Outcomes:**

<table>
<thead>
<tr>
<th>College-Wide Learning Outcome</th>
<th>Assessments - - How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication – Written</td>
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<tr>
<td>Communication – Speech</td>
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<tr>
<td>Intercultural Knowledge and Competence</td>
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<tr>
<td>Critical Thinking</td>
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<td>Information Literacy</td>
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<td>Quantitative Literacy</td>
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</tbody>
</table>
L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Assessments – How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explain how topologies and devices interoperate in a SMB network</td>
<td>Week 1 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>2. Configure initial settings on a network device using the Cisco IOS Software</td>
<td>Week 2 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>3. Explain the role of protocols and standards organizations in facilitating interoperability in network communications</td>
<td>Week 3 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>4. Build a simple network using the appropriate media and explain the role of the data link layer in supporting communications across data networks</td>
<td>Week 4 tests, labs, practice and final exams</td>
</tr>
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<td>5. Explain the operation of Ethernet</td>
<td>Week 5 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>6. Explain how routers enable end-to-end connectivity and route traffic in a SMB network</td>
<td>Week 6 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>7. Explain how IPv4 and IPv6 addresses provide connectivity in SMB networks</td>
<td>Week 7 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>8. Implement a VLSM addressing scheme to provide connectivity to end users in a small to medium-sized (SMB) network</td>
<td>Week 7 tests, labs, practice and final exams</td>
</tr>
<tr>
<td>9. Explain how transport and application layer protocols and services support communications across data networks</td>
<td>Week 8 tests, labs, practice and final exams</td>
</tr>
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M. Topical Timeline (Subject to Change):

1 Explore the Network
   1.1 Globally Connected: Explain how multiple networks are used in everyday life.
   1.2 LANs, WANs, and the Internet: Explain how topologies and devices are connected in a SMB network.
   1.3 The Network as a Platform: Explain the basic characteristics of a network that supports communication in a SMB.
   1.4 The Changing Network Environment: Explain trends in networking that will affect the use of networks in SMBs.

2 Configure a Network Operating System
   2.1 IOS Bootcamp: Explain the features and functions of the Cisco IOS Software.
   2.2 Basic Device Configuration: Configure initial settings on a network device using the Cisco IOS Software.
   2.3 Address Schemes: Given an IP addressing scheme, configure IP address parameters on devices to provide end-to-end connectivity in a SMB network.

3 Network Protocols and Communications
   3.1 Rules of Communication: Explain how rules facilitate communication.
   3.2 Network Protocols and Standards: Explain the role of protocols and standards organizations in facilitating interoperability in network communications.
   3.3 Data Transfer in the Network: Explain how devices on a LAN access resources in a small to medium-sized business network.

4 Network Access
4.1 Physical Layer Protocols: Explain how physical layer protocols and services support communications across data networks.
4.2 Network Media: Build a simple network using the appropriate media.
4.3 Data Link Layer Protocols: Explain the role of the data link layer in supporting communications across data networks.
4.4 Media Access Control: Compare media access control techniques and logical topologies used in networks.

5 Ethernet
5.1 Ethernet Protocol: Explain the operation of Ethernet.
5.2 LAN Switches: Explain how a switch operates.
5.3 Address Resolution Protocol: Explain how the address resolution protocol enables communication on a network.

6 Network Layer
6.1 Network Layer Protocols: Explain how network layer protocols and services support communications across data networks.
6.2 Routing: Explain how routers enable end-to-end connectivity in a SMB network
6.3 Routers: Explain how devices route traffic in SMB networks.
6.4 Configuring a Cisco Router: Configure a router with basic configurations.

7 IP Addressing
7.1 IPv4 Network Addresses: Explain the use of IPv4 addresses to provide connectivity in SMB networks.
7.2 IPv6 Network Addresses: Configure IPv6 addresses to provide connectivity in small to medium-sized business networks.
7.3 Connectivity Verification: Use common testing utilities to verify and test network connectivity.

8 Subnetting IP Networks
8.1 Subnetting an IPv4 Network: Implement an IPv4 addressing scheme to enable end-to-end connectivity in a SMB network
8.2 Addressing Schemes: Given a set of requirements, implement a VLSM addressing scheme to provide connectivity to end users in a small to medium-sized (SMB) network.
8.3 Design Considerations for IPv6: Explain design considerations for implementing IPv6 in a business network.

9 Transport Layer
9.1 Transport Layer Protocols: Explain how transport layer protocols and services support communications across data networks.
9.2 TCP and UDP: Compare the operations of transport layer protocols in supporting end-to-end communication.

10 Application Layer
10.1 Application Layer Protocols: Explain the operation of the application layer in providing support to end-user applications.
10.2 Well-Known Application Layer Protocols and Services: Explain how well-known TCP/IP application layer protocols operate.

N. Course Assignments:

1. Tests
2. Labs
3. Practice Exam
4. Final Exam
Recommended Grading Scale:

<table>
<thead>
<tr>
<th>NUMERIC</th>
<th>GRADE</th>
<th>POINTS</th>
<th>DEFINITION</th>
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<tbody>
<tr>
<td>93–100</td>
<td>A</td>
<td>4.00</td>
<td>Superior</td>
</tr>
<tr>
<td>90–92</td>
<td>A-</td>
<td>3.67</td>
<td>Superior</td>
</tr>
<tr>
<td>87–89</td>
<td>B+</td>
<td>3.33</td>
<td>Above Average</td>
</tr>
<tr>
<td>83–86</td>
<td>B</td>
<td>3.00</td>
<td>Above Average</td>
</tr>
<tr>
<td>80–82</td>
<td>B-</td>
<td>2.67</td>
<td>Above Average</td>
</tr>
<tr>
<td>77–79</td>
<td>C+</td>
<td>2.33</td>
<td>Average</td>
</tr>
<tr>
<td>73–76</td>
<td>C</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>70–72</td>
<td>C-</td>
<td>1.67</td>
<td>Below Average</td>
</tr>
<tr>
<td>67–69</td>
<td>D+</td>
<td>1.33</td>
<td>Below Average</td>
</tr>
<tr>
<td>63–66</td>
<td>D</td>
<td>1.00</td>
<td>Below Average</td>
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<tr>
<td>60–62</td>
<td>D-</td>
<td>0.67</td>
<td>Poor</td>
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<tr>
<td>00–59</td>
<td>F</td>
<td>0.00</td>
<td>Failure</td>
</tr>
</tbody>
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Grading and Testing Guidelines:
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Examination Policy:
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Class Attendance and Homework Make-Up Policy:
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Classroom Expectations:
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College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf

The information can also be found Choose an item.