CREDIT
3  Semester Credit Hours (2 hours lecture, 4 hours lab)

MODE OF INSTRUCTION
Hybrid

PREREQUISITE/CO-REQUISITE:
None

COURSE DESCRIPTION
Describes the architecture, components, and operations of routers and switches in small networks and introduces wireless local area networks (WLAN) and security concepts; provides an in-depth understanding of how routers and switches operate and are implemented in the LAN environment.

COURSE OBJECTIVES
Upon completion of this course, the student will be able to
- Configure, secure, and maintain routers and switches
- Resolve common issues with routing protocols, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.
- Configure WLANs.

REQUIRED TEXTBOOK AND MATERIALS
Recommended Textbook and Materials


ATTENDANCE POLICY

Three absences are allowed. If a student is tardy to class or departs early three (3) times, it will be equal to one (1) absence. Each absence beyond three absences will result in a 2 point deduction from your final grade.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16-week session OR approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

COURSE CALENDAR

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<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>READINGS (Due on this Date)</th>
<th>ASSIGNMENTS (Due on this Date)</th>
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<td>Basic Device Configuration</td>
<td>Chapter 1 See Blackboard Calendar</td>
<td>Packet Tracer 1.3.6</td>
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<td>Week 1</td>
<td>Configure Router Interfaces</td>
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<td>Week 1</td>
<td>Verify Directly Connected Networks</td>
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<tr>
<td>Week 1</td>
<td>Implement a Small Network</td>
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<td>Week 2</td>
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<td>Week 3</td>
<td>VLANs</td>
<td>Chapter 3 See Blackboard Calendar</td>
<td>Packet Tracer 3.1.4</td>
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<td>Week 3</td>
<td>Investigate a VLAN Implementation</td>
<td>Chapter 3 See Blackboard Calendar</td>
<td>Packet Tracer 3.2.8</td>
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| Week 3 | VLAN Configuration | Chapter 3
See Blackboard Calendar | Packet Tracer 3.3.12 |
|--------|-------------------|---------------------------|---------------------|
| Week 3 | Configure Trunks  | Chapter 3
See Blackboard Calendar | Packet Tracer 3.4.5 |
| Week 3 | Configure DTP     | Chapter 3
See Blackboard Calendar | Packet Tracer 3.5.5 |
| Week 3 | Implement VLANS and Trunking | Chapter 3
See Blackboard Calendar | Packet Tracer 3.6.1 |
| Week 4 | Inter-VLAN Routing | Chapter 4
See Blackboard Calendar | Packet Tracer 4.2.7 |
| Week 4 | Configure Layer 3 Switching and Inter-VLAN Routing | Chapter 4
See Blackboard Calendar | Packet Tracer 4.3.8 |
| Week 4 | Troubleshoot Inter-VLAN Routing | Chapter 4
See Blackboard Calendar | Packet Tracer 4.4.8 |
| Week 4 | Modules 1 - 4: Switching Concepts, VLANS, and InterVLAN Routing Exam | Study Guide 1 - 4
See Blackboard Calendar | Exam 1 – 4 |
| Week 5 | STP Concepts      | Chapter 5
See Blackboard Calendar | Packet Tracer 5.1.9 |
| Week 6 | EtherChannel      | Chapter 6
See Blackboard Calendar | Packet Tracer 6.2.4 |
| Week 6 | Troubleshooting EtherChannel | Chapter 6
See Blackboard Calendar | Packet Tracer 6.3.4 |
| Week 6 | Implement EtherChannel | Chapter 6
See Blackboard Calendar | Packet Tracer 6.4.1 |
| Week 6 | Modules 5 - 6: Redundant Networks Exam | Study Guide 5 - 6
See Blackboard Calendar | Exam 5 - 6 |
| Week 7 | DHCPv4            | Chapter 7
See Blackboard Calendar | Packet Tracer 7.2.10 |
| Week 7 | Implement DHCPv4  | Chapter 7
See Blackboard Calendar | Packet Tracer 7.4.1 |
| Week 8 | SLAAC and DHCPv6  | Chapter 8
See Blackboard Calendar | In Class Work |
| Week 8 | FHRP Concepts     | Chapter 9
See Blackboard Calendar | Packet Tracer 9.3.3 |
| Week 8 | Modules 7 - 9: Available and Reliable Networks Exam | Study Guide 7 - 9
See Blackboard Calendar | Exam 7 - 9 |
| Week 9 | LAN Security Concepts | Chapter 10
See Blackboard Calendar | In Class Work |
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<th>Chapter/Study Guide</th>
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<td>10</td>
<td>Switch Security Configuration</td>
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<td>Configure a Basic WLAN on the WLC</td>
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<td>Configure a WPA2 Enterprise WLAN on the WLC</td>
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**COURSE EVALUATION**
Final grades will be calculated according to the following criteria:
- Labs 30%
- Study Guides 10%
- Module Tests 30%
- Final Exam 30%

**GRADING SCALE**
- 90 – 100 A
- 80 – 89 B
LIT does not use +/- grading scales

**ACADEMIC DISHONESTY**
Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution’s Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

**TECHNICAL REQUIREMENTS**
The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

**DISABILITIES STATEMENT**
The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles’ Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

**STUDENT CODE OF CONDUCT STATEMENT**
It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

**STARFISH**
LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give
praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

**ADDITIONAL COURSE POLICIES/INFORMATION**

**Course Policies**

1. No food, drinks, use of tobacco products, or vaping products in class.
2. Electronic devices not being used for the class, such as phones and headphones, must be turned off while in class. Any device usage during class may result in a deduction of points on an assignment or test.
3. Do not bring children to class.
4. Certification: If a student passes the certification test that is associated with this class, you will receive an “A” on the final exam and credit for 25% of your labs.
5. A grade of ‘C’ or better must be earned in this course for credit toward degree requirement.
6. All assignment due dates are indicated in the Blackboard course for this class. Any work submitted after the assigned due date will receive a 10 point deduction.
7. Tests are assigned a due date and must be completed by that date. Tests will not be reactivated after the due date.
8. All assignments must be submitted via Blackboard unless specified by your instructor. Assignments submitted through any other method will receive a “0”.
9. Grades for assignments may be accessed through My Grades in Blackboard. Each assignment shows your grade and any grading comments made on your assignment.
10. Chapter Exam grades may be accessed through the Cisco website until they are transferred to the Gradebook in Blackboard.
11. It is the student’s responsibility to verify transferred exam grades and ask for corrections if needed.
12. All work is due before the final exam date. Nothing will be graded after the final exam.

**Certification Requirement**

CNTT and Cyber Security majors are required to earn certification in one of the following areas prior to graduation.

- A+ Certification
- Network+ Certification
This course covers part of the material to prepare for the Cisco Certified Network Associate v1.0 (CCNA 200-301) certification exam. All three Cisco courses must be completed to cover the material for the CCNA exam. Students are responsible for scheduling and paying for the certification through the LIT Testing Center. More information about the certification can be found online at http://www.cisco.com/c/en/us/training-events/training-certifications/certifications.html.