SOUTHWEST TECH

SOUTHWEST TECHNICAL COLLEGE

TEIT 1170 - Computer Networks I (2 Credits)

Course Description

Computer Networks I explores common computer networking models, network device installation and configuration, switching and routing technologies, IP address configuration, basic wireless network configuration, and network troubleshooting tools and methodology. This course aligns with objectives from popular networking certification.

Course Objectives

- Differentiate the purpose of each layer in the Open Systems Interconnection (OSI) model.
- Install and configure common networking devices, components, and services.
- Identify characteristics of switching and routing technologies and features.
- Plan and configure IPv4 and IPv6 network addresses and services.
- Configure a small office/home office (SOHO) wireless network.
- Use the appropriate methodology, tools, and protocols to troubleshoot and resolve networking issues.

Course Outline

- Network Models and Protocols
- Cabling and Network Hardware
- Addresses and Services
- Switching and Routing

Textbook & Reading Materials

TestOut Network Pro, Test Out, ISBN: 9781935080435

Assignments and Assessments

Course Introduction and Standards
Meet Your Instruction Team
Rules of the Lab
CS Code of Conduct Policy
Submitting Assignments in Canvas
Taking a Screenshot
Orientation
Orientation Acknowledgement
Syllabus Agreement
5.1 - Routing Technologies
5.1.9 - Lab: Install an Enterprise RoUJter
5.1.10- Lab: Cisco Troubleshooting Tools
5.1.11- Lesson Review
5.2.7 - Lesson Review
5.3.4 - Lab: Configure NAT
5.3.5 - Lesson Review
5.4.3 - Lesson Review
5.5.3 - Compare Three-Tier Hierarchical Model
5.5.4 - Laib: Create a Three-Tier Network
5.5.5 - Lesson Review
5.6.8 - Laib: Configure Switch IP and VLAN - GUI
5.6.9 - Laib: Create VLANs - GUI
5.6.10 - Lab: Configure Trunking
5.6.11- Lab: Configure Switch IP Settings - CLI
5.6.12- Lab: Configure ManagementVLAN Settings - CLI
5.6.13 - Lesson Review
5.7.4 - Lesson Review
5.8 - Module Quiz
6.1.7 - Laib: Explore Three-Way Handshake in Wireshark
6.1.8 - Laib: View Open Ports with netstat
6.1.9 - Lesson Review
Skills Check: Fiber Splicing
Student Acknowledgement Statement Module 1
Checkpoint Meeting Module 1
6.2 - Dynamic Host Configuration Protocol
6.2.5 - Laib: Configure a DHCP Server
6.2.6 - Laib: Configure DHCP Server Options
6.2.7 - Laib: Create DHCP Exclusions
6.2.8 - Lab: Create DHCP Client Reservations
6.2.10 - Lab: Configure Client Addressing for DHCP
6.2.11 - Lesson Review
6.3.4 - Lab: Explore APIPAAddressing
6.3.5 - Lab: Explore APIPAAddressing in Network Modeler
6.3.7 - Lesson Review
6.4.4 - Lab: Configure a DHCP Relay Agent
6.4.5 - Laib: Add a DHCP Server on Another Subnet
6.4.6 - Lab: Troubleshoot Address Pool Exhaustion
6.4.7- Lab: Explore DHCPTroubleshooting
6.4.8 - Laib: Troubleshoot IP Configuiration 1
6.4.9 - Lab: Troubleshoot IP Configuiration 2
6.4.10 - Lab: Troubleshoot IP Configiuration 3
6.4.11 - Lesson Review
6.5.11 - Lab: Configure DNS Addresses
6.5.12 - Lab: Create Standard DNS Zones
6.5.13 - Lab: Create Host Records
6.5.14 - Lab: Create CNAME Records
6.5.15 - Lab: Troubleshoot DNS Records
6.5.17 - Lesson Review
6.6.6 - Lab: Use nslookup
6.6.7 - Lesson Review
6.7 - Modlule Quiz
6.8 - Checkpoint Review
7.1.4 - Laib: Configure NTP on Linux
7.1.5 - Lesson Review
Student Acknowledgement Statement Module 2
Checkpoint Meeting Module 2
7.2 - Web, File, Print, and Database Services
7.2.8 - Lab: Scan for Web Services with Nmap
7.2.9 - Lesson Review
7.3.6- Lab: Connect VoIP 1
7 .3. 7 - Laib: Connect Vol P 2
Skills Check: VOiP Installation
7.3.8 - Lesson Review
7.4.8 - Lab: Configure NIC Teaming
7.4.9 - Lesson Review
7.5 - Modlule Quiz
8.1.11- Lab: Update Firmware
8.1.12 - Lesson Review
8.2.8 - Lab: Scan Using Zenmap
8.2.9 - Lesson Review
8.3.6 - Lesson Review
8.4.6 - Lab: Configure Logging in pfSense
8.4.7 - Lab: Evaluate Event Logs in pfSense
8.4.8 - Lab: Auditing Device Logs on a Cisco Switch
8.4.9 - Laib: Configure Logging on Linux
8.4.10 - Lab: View Event Logs
8.4.11- Lesson Review
8.5.5 - Laib: Troubleshoot with Wireshark
8.5.6 - Lab: Configure Port Mirroring
8.5.7 - Lesson Review
8.6.7 - Lab: Configure QoS
8.6.9 - Lesson Review
8.7 - Module Quiz
Student Acknowledgement Statement Module 3
Checkpoint Meeting Module 3
9.1 - Security Concepts
9.1.7 - Lab: Create a Honeypot
9.1.8 - Lesson Review
9.2.5 - Lab: Analyze a DoS Attack
9.2.6 - Lab: Analyze a DDoS Attack
9.2.7 - Lesson Review
9.3.7 - Lab: Poison ARP and Analyze with Wireshark
9.3.8 - Laib: Spoof MAC Addresses with SMAC
9.3.9 • Laib: Perform a DHCP Spoofing On•Path Attack
9.3.10 - Lesson Review
9.4.6 - Lab: Discover a Rogue DHCP Server

9.4.7 - Lab: Configure DHCP Snooping
9.4.8 - Lab: Poison DNS
9.4.9 - Lab: Analyze DNS Spoofing
9.4.10 - Lesson Review
9.5.3 - Laib: Respond to Social Engineering Exploits
9.5.4 - Laib: Crack a Password with John t he Ripper
9.5.5 - Lesson Review
9.6 - Modlule Quiz
9.7 - Checkpoint Review
Student Acknowledgement Statement Module 4
Checkpoint Meeting Module 4

Subject to change. Please consult your Canvas course for the most current instructions and updates.

Classroom Hours

Mo, Tu, W, Th, Fr
8:00 AM - 11:00 AM
12:00 PM - 3:00 PM

For a full list of course hours visit: Course Schedule

Instructor Contact Information

Greg Davis — gdavis@stech.edu
Austin Prince — aprince@stech.edu

Office Hours: By appointment

Email is the preferred method of communication; you will receive a response within 24 hours during regular business hours.

Canvas Information

Canvas is the where course content, grades, and communication will reside for this course.

- stech.instructure.com
- For Canvas passwords or any other computer-related technical support contact Student Services.
- For regular Hours and Weekdays call (435) 586 - 2899.
- For after Hours & Weekends call (435) 865 - 3929 (Leave a message if no response).

Course Policies

Course Grading: All assignments in this course require 100% score with unlimited submissions. All quizzes require a minimum score of 80%.

High School Power School Grades: Quarter student grades will be determined by student progress percentage. Faculty will use the higher percentage of either 1) quarter progress, or 2) cumulative progress for the current training plan year.

Grade Scale: The following grading scale will be used to determine a letter grade.

- A : 94 - 100%
- A- : 90 - 93%
- B+ : 87 - 89%
- B : 83 - 86%
- B- : 80 - 82%
- C+ : 77 - 79%
- C : 73 - 76%
- C- : 70 - 72%
- D+ : 67 - 69%
- D : 63 - 66%
- D- : 60 - 62%
- F : 0 - 59%

Course Policies: You are required to keep your progress and attendance at 67% minimum. You must complete this program within 150% estimated program length. You are permitted one 15 minute break every 90 minutes. If you take more than one break in a 90 minute period or your break lasts longer than 15 minutes, your attendance will be penalized. 10 consecutive absences will lead to being withdrawn from the program. Please notify your instructors about absences as soon as possible. If absence is due to illness, please email your instructors prior to end of day. Cell Phone/Electronics – Cell phones cannot be used during class time. You may bring your personal computers to class. You must be on topic in the lab while clocked-in. Industry Environment – computer science typically is very sedentary. This means you may sit at a desk for long hours. Be sure to move and get what exercise you can.

Additional Information

InformaCast Statement: Southwest Tech uses InformaCast to ensure the safety and well-being of our students. In times of emergency, such as weather closures and delays, this app allows us to promptly deliver notifications directly to your mobile devices. To stay informed and receive real-time updates, we encourage all students to sign up for notifications. Your safety is our priority, and staying connected ensures a swift response to any unforeseen circumstances. More information and directions for signing up are available at: https://stech.edu/emergency-notifications/

Internet Acceptable Use Policy: The student is expected to review and follow the Southwest Technical College Internet Safety Policy at: https://stech.edu/students/policies/

Student Code of Conduct Policy: The student is expected to review and follow the Southwest Technical College Student Code of Conduct Policy at: https://stech.edu/students/policies/

Accommodations: Students with medical, psychological, learning, or other disabilities desiring accommodations or services under ADA, must contact the Student Services Office. Student Services determines eligibility for and authorizes the provision of these accommodations and services. Students must voluntarily disclose that they have a disability, request an accommodation, and provide documentation of their disability. Students with disabilities may apply for accommodations, based on an eligible disability, through the Student Services office located at 757 W. 800 S., Cedar City, UT 84720, and by phone at (435) 586-2899. No diagnostic services are currently available through Southwest Technical College.

Safety and Building Maintenance: The College has developed and follows a variety of plans to ensure the safe and effective operation of its facilities and programs. The following plans are available online:
1) Facilities Operations and Maintenance Plan; 2) Technical Infrastructure Plan; and 3) Health and Safety Plan.

Withdrawals and Refunds: Please refer to the Southwest Technical College Refund Policy at:
https://stech.edu/students/policies/

Any high school or adult student, who declares a technical training objective is eligible for admission at Southwest Technical College (Southwest Tech). Program-specific admissions requirements may exist and will be listed on the Southwest Tech website. A high school diploma or equivalent is not required for admission but is mandatory for students seeking Title IV Federal Financial Aid.

Non-Discriminatory Policy: Southwest Technical College affirms its commitment to promote the goals of fairness and equity in all aspects of the educational enterprise, and bases its policies on the idea of global human dignity.

Southwest Tech is committed to a policy of nondiscrimination. No otherwise qualified person may be excluded from participation in or be subjected to discrimination in any course, program or activity because of race, age, color, religion, sex, pregnancy, national origin or disability. Southwest Technical College does not discriminate on the basis of sex in the education programs or activities that it operates, as required by Title IX and 34 CFR part 106. The requirement not to discriminate in education programs or activities extends to admission and employment. Inquiries about Title IX and its regulations to STECH may be referred to the Title IX Coordinator, to the Department of Education, and/or to the Office for Civil rights.

If you believe you have experienced discrimination or harassment on our campus, please contact the Title IX Coordinator, Cory Estes: cestes@stech.edu, (435) 865-3938.

For special accommodations, please contact the ADA Coordinator, Cyndie Tracy: ctracy@stech.edu, (435) 865-3944.
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