

SAN CARLOS APACHE COLLEGE

The Higher Education Institution of the Apache People
(Syllabus)

CIS 230N-1: Network Fundamentals

Course Information

Course Title: Network Fundamentals
Room: Online (OL)
Course Prefix/Number: CIS 230N-1
Semester: Fall 2025
Class Days/Times: Online Only (OL)
Credit Hours: 4 cr hrs. (4 pds: 3 lec 1 lab)
Course Dates: 8.18.2025 – 12.05.2025

Instructor Information

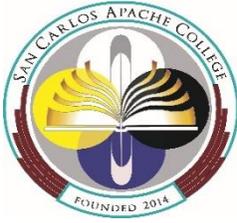
Name: Keshav Bidari
Phone: 928.475.2016
E-mail: keshav.bidari@apachecollege.org
Office location: JM Building, Main Campus
Office hours: By appointment T 2:30-3:00 pm & 4:15-5:30 pm, W 3:30-5:30 pm, R 4:15-5:30 pm

Course Description

This course provides an introduction to the fundamentals of computer networking including the history of networking, network standards and protocols, and the Open Systems Integration (OSI) and Transmission Control Protocol/Internet Protocol (TCP/IP) reference models. The course will also provide practical examples of Ethernet Local Area Network (LAN)s and Internet Protocol (IP) routing covering network monitoring and management and common network services. The basics of wireless networks will also be addressed. **Prerequisite:** CIS 100, MAT 142 or higher with C or better.

Course Learning Outcomes (CLOs)

CLO1	Discuss the impact of modern computer network technology tools on personal, national, and global issues and ethics.
CLO2	Explain how the Internet works through computer networks and the tools used for collaboration, communication, commerce, etc., and how businesses construct networks and business intelligence to make decisions.
CLO3	Describe what is necessary to install, configure, and manage a computing network system and network security, including printers and wireless networks, and how to decide when to upgrade systems and components.
CLO4	Describe hackers, viruses, online annoyances, and the threats they pose to one's network security.



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CLO5	Prepare to take Cisco Certified Network Associate Certification Exam.
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Course Structure

The course will be taught online using both Canvas and CertMaster courseware and preparation information for Cisco Certified Network Associate/CompTIA Network+ Certification exam. Students will be expected to complete reading assignments on their own. Due to nature of the online course, all videos, simulations, hands-on training, and other multimedia learning materials related to the reading assignments will also be completed on your own. Zoom office hours by appointment are available to answer questions and deepen knowledge whenever necessary.

Course Learning Materials and Textbook Information

CertMaster Learn Network+(New) LabSim ISBN-978-1-642745-24-5. Contact bookstore for access code or purchase online.

Policies and Expectations (organized around SCAC's ARROW framework – accountability, respect, resilience, openness, and wisdom)

Accountability: (defines grade expectations and accountability for coursework; emphasizes students' responsibility for original work and proper citation; stresses punctuality, participation, and consequences of absences)

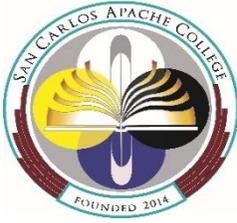
Evaluations and Grading & Assignments:

A	90-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	Below 60%

Course grades will be determined by the following:

Students are graded by a percentage of total points on an absolute grading scale. Grades will be determined using the following weighting criteria:

- Participation/Discussion forums including reading assignments/video tutorials: 20%
- Quizzes: 20%



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- Lab Assignments: 30%
- Exam: 30%

Attendance Policy

Students are expected to log on to Canvas at least 2 times each week and complete assigned work. Students must coordinate with the instructor to complete any missed work in a timely manner.

Four unexcused absences may result in withdrawal and a “W” or “Y” will be recorded. You may request to be excused from class for religious observances and practices, for illness, for school or work-related travel or for personal or family emergencies. If you will be absent, please notify the instructor as soon as possible.

This course is 100% online. We will NOT meet for the class. Each week, assignments will be released, and assignments are due each week after assignments are posted unless mentioned otherwise. Please work on Certmaster/LabSim and check Canvas course portal regularly. Students can meet the instructor over the Zoom. If you have any questions related to the course, email the instructor for an appointment.

Late Work Policy

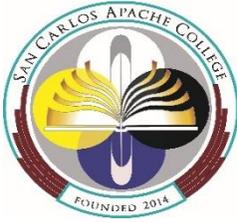
For unexcused absences, there will be a late penalty of **3% per day** subtracted from your score. Late assignments may be submitted up to **seven days** late. After seven days, the assignment is scored as a Zero and may not be submitted. Late submissions will not be accepted for exams or during the final week of classes.

Exams must be taken on the date listed in the course schedule and/or Canvas. If you are unable to take an exam on the assigned date, you must let the instructor know at least one week prior to the scheduled exam date. Make-up exam dates will only be set for the most extreme circumstances.

Academic Integrity

Violations of scholastic ethics are considered serious offenses by San Carlos Apache College. Students may consult the SCAC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure.

All work done for this class must be your own, or the original work of your group. While you may discuss assignments with other class members, the final written project if any must clearly be original. You may use work from books and other materials if it is properly cited.



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Instructor Withdrawals

Students who have missed four consecutive classes (or the equivalent) or have not submitted any assignments nor taken any quizzes by the 45th day census found in the Academic Calendar are assumed NOT to be participating in the class and may be withdrawn from the course.

Student Withdrawals

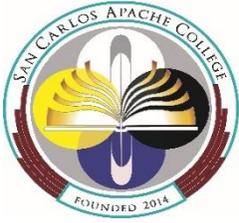
Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by withdrawal deadline date found in Academic Calendar if you do not expect to complete the class; otherwise, you may receive an "F" grade.

Major Dates:

2025 Fall Semester	
Fall Admissions Deadline	Aug 8, 2025
Faculty Return	Aug 11, 2025
First Day of Instruction	Aug 18, 2025
Registration (to add) Deadline	Aug 22, 2025
Labor Day – College Closed	Sep 1, 2025
Drop/Full Refund Deadline	Sep 2, 2025
Fall Break – No classes	Sep 29 -Oct 4, 2025
45th Day Census	Oct 1, 2025
Spring Registration Begins	Oct 20, 2025
Withdrawal Deadline	Oct 29, 2025
Veterans Day – College Closed	Nov 11, 2025
Thanksgiving Holiday – College Closed	Nov 27, 2025
Native American Heritage Day – College Closed	Nov 28, 2025
Spring/Summer Graduation Application Due	Dec 1, 2025
Last Day of Instruction	Dec 5, 2025
Final Exams	Dec 8-11, 2025
Final Grades Due	Dec 12, 2025
Winter Break – College Closed	Dec 25 - 2025 - Jan 1, 2026

RESPECT (Establishes a respectful learning environment free from discrimination; promotes a safe and inclusive campus).

Equal Access Statement/Disability Accommodations



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San Carlos Apache College seeks to provide reasonable accommodations for qualified individuals with disabilities. The College will comply with all applicable regulations, and guidelines with respect to providing reasonable accommodations as required to ensure an equal educational opportunity. This process includes self-identifying as a student with a disability, providing supporting documentation of their disability, and being approved for services through the Disability Resources Office (DRO). It is the student's responsibility to make known to their instructor(s) the student's specific needs within the context of each class in order to receive appropriate accommodations. We will work together in order to develop an accommodation plan specifically designed to meet the individual student's requirements.

For more information or to request academic accommodations, please contact: Anthony Osborn, TOCC Disabilities Resource Coordinator, aosborn@tocc.edu, or 520-383-0033 for additional information and assistance.

Title IX

San Carlos Apache College encourages each student to have the knowledge and skills to be an active bystander who intervenes when anyone is observed or being harassed or endangered by sexual violence. Sexual discrimination and sexual violence can undermine students' academic success and quality of life on campus and beyond. We encourage students who have experienced or witnessed any form of sexual misconduct to talk about their experience and seek the support they need.

Conduct: Bias, Bullying, Discrimination and Harassment

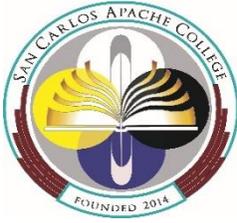
San Carlos Apache College faculty and staff are dedicated to creating a safe and supportive campus environment as a core value. Harassment based on age, class, color, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, marital status, political ideology, race, religion/spirituality, sex, sexual orientation, and tribal sovereign status will not be tolerated.

RESILIENCE (Supports students facing unavoidable circumstances and recognizes hardships, while setting academic expectations).

Incomplete Policy

Incomplete (I) grades are not awarded automatically. The student must request an "I" from the instructor who can choose to award an Incomplete only if all three of the following conditions are met:

1. The student must be in compliance with the attendance policy.
2. The student must have unavoidable circumstances that would prohibit the student from completing the course.
3. The student must have completed over 75% of the course requirements with at least a "C" grade.



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Incomplete is not a substitute for incomplete work due to frequent absences or poor academic performance. Incomplete grades that are not made up by the end of the ninth week of the following semester will be automatically changed to an F if the agreed upon work, as stipulated on the written form signed by the instructor and the student when the I grade is awarded, is not completed.

Special Withdrawals (Y) Grade

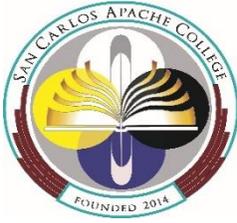
The “Y” grade is an administrative withdrawal given at the instructor’s option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale, with documentation, for awarding this grade. “Y” grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason.

OPENNESS (Encourages open discussions between students and faculty and provides transparency about expectations and learning methods)

Courses Outline/Dates¹

Week	Module	Lesson ID & Title	Assignments
1	Introduction and Orientation	Canvas and CertMaster Getting Started	Post Introduction, Familiarize with Canvas and CertMaster (Reading and Video Tutorial)
2.	1.0 – Explaining Network Topologies	1.1 Compare Network Topologies 1.2 Categorize Network Types 1.3 Summarize Network Models 1.4 Explain Network Protocols	Readings: Topology types, OSI vs TCP/IP Videos: Star vs Mesh, TCP vs UDP Labs: Topology Builder, Protocol Identification Quizzes: 1.1–1.4 /Lesson Review Quiz
3.	2.0 – Supporting Cabling and Physical Installations	2.1 Identify Cable Types 2.2 Compare Connector Types 2.3 Use Appropriate Tools 2.4 Interpret Cable Diagrams 2.5 Troubleshoot Cabling Issues 2.6 Apply Safety Standards	Readings: Copper vs Fiber Videos: Crimping, Cable Testing Labs: Cable Identification, Termination Quizzes: 2.1–2.6
4.	3.0 – Configuring Interfaces and Switches	3.1 Configure Interface Settings 3.2 Configure VLANs 3.3 Explain Switch Features	Readings: VLAN Concepts Videos: Switch Roles Labs: VLAN Configuration Quizzes: 3.1–3.3
5.	4.0 – Configuring Network Addressing	4.1 Compare IPv4 and IPv6 4.2 Calculate Subnets	Readings: Subnetting, DHCP Videos: IP Addressing Labs: Subnetting Practice

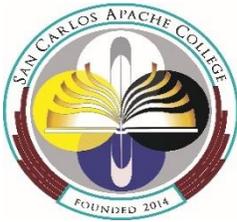
¹ Tentative schedule. Subject to change at the instructor’s discretion.



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		4.3 Configure DHCP and IPAM	Quizzes: 4.1–4.3
6.	5.0 – Configuring Routing and Advanced Switching	5.1 Configure Static and Dynamic Routing 5.2 Troubleshoot Routing Issues 5.3 Configure STP 5.4 Configure Port Aggregation	Readings: Routing Protocols Videos: STP Explained Labs: Routing Table Configuration Quizzes: 5.1–5.4
7.	6.0 – Implementing Network Services	6.1 Configure DNS 6.2 Configure NAT 6.3 Configure NTP 6.4 Configure IPAM	Readings: DNS Zones Videos: NAT vs PAT Labs: DNS Configuration Quizzes: 6.1–6.4
8.	7.0 – Explaining Application Services	7.1 Explain Web Services 7.2 Explain Email Services 7.3 Explain File Sharing Services	Readings: Application Protocols Videos: HTTP vs HTTPS Labs: Wireshark Capture Quizzes: 7.1–7.3
9.	8.0 – Supporting Network Management	8.1 Monitor Network Performance 8.2 Use Logs and Alerts 8.3 Use SNMP 8.4 Use Configuration Management Tools	Readings: SNMP Basics Videos: Syslog Explained Labs: SNMP Configuration Quizzes: 8.1–8.4
10.	9.0 – Explaining Network Security Concepts	9.1 Identify Security Threats 9.2 Identify Vulnerabilities 9.3 Explain Security Mitigation Techniques	Readings: Security Principles Videos: Threat Modeling Labs: Risk Assessment Quizzes: 9.1–9.3
11.	10.0 – Applying Network Security Features	10.1 Configure ACLs 10.2 Configure Firewalls 10.3 Segment Networks	Readings: ACL Rules Videos: Firewall Zones Labs: ACL Configuration Quizzes: 10.1–10.3
12.	11.0 – Supporting Network Security Design	11.1 Design DMZs and Zones 11.2 Apply Defense-in-Depth	Readings: Network Segmentation Videos: Defense-in-Depth Labs: DMZ Design Quizzes: 11.1–11.2
13.	12.0 – Configuring Wireless Networks	12.1 Compare Wireless Standards 12.2 Secure Wireless Networks 12.3 Conduct Site Surveys	Readings: Wireless Protocols Videos: Site Survey Labs: Wireless Configuration Quizzes: 12.1–12.3
14.	13.0 – Comparing Remote Access Methods	13.1 Compare VPN Types 13.2 Explain Authentication Methods	Readings: VPN Types Videos: Tunneling Explained Labs: VPN Setup Quizzes: 13.1–13.2
15.	14.0 – Summarizing Cloud Concepts	14.1 Compare Cloud Models 14.2 Explain Virtual Networking	Readings: Cloud Models Videos: Virtual Networking Labs: Cloud Comparison



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			Quizzes: 14.1–14.2
16.	Review & Final Assessment	All Modules	Practice Exam, Remediation Labs, Final Quiz

Faculty/Student Communication

A faculty member will respond to a student’s communication within 24 hours of receiving the communication excluding weekends and college closures. If a course is online a faculty will login their Canvas classroom a minimum of three times per week spread evenly throughout the week and respond to any discussion posts and check on student progress in the course.

Course Feedback:

All assignments will be graded and returned to the students promptly, typically within a week after the assignment is closed for handing in. Email and phone messages will be returned within 24 hours. A student or the instructor may request a student conference at any time during the semester. Quarterly grade reports will be provided to each student, either in person, by email or via the electronic system of Canvas.

WISDOM (Encourages evaluation, reasoning and diverse perspectives; emphasizes organized and audience-aware expression, and promotes learning from elders and cultural teachings for personal and academic growth)

SCAC General Education Learning Outcomes

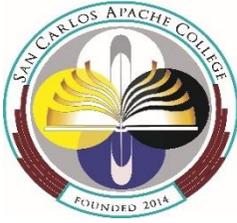
Apache Wisdom

Learning from the teachings carried on from Apache elders and other community leaders, students will appreciate their unique history, language, and culture as a source of strength for their personal, family, academic, and career aspirations.

Critical Thinking

Approach critical issues, problems, or questions using creativity and deductive reasoning, evaluating evidence, acknowledging diverse perspectives and contexts, and synthesizing one’s own viewpoint into ongoing conversations and debates.

Communication



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Effectively express ideas orally and in writing. Good communication includes understanding one's audience, organizing one's thoughts, acknowledging and integrating outside sources, using the most recent technology, and following the accepted writing and citation conventions of the particular discipline.

Environmental Literacy

Students will understand their connection to social, cultural, physical, and global environments. Students will consider and evaluate strategies for cultural, community and global sustainability.

DISCLAIMER: This syllabus is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of any changes as they occur.