

Network System Design

Course Overview and Syllabus

Grade level: 9–12

Prerequisite Courses: None

Credits: 0.5

Course Description

Network System Design is a semester-long course that provides students with an understanding of computer networks and how they operate, as well as a basic understanding of how to manage and maintain computer networks. These skills provide students with the ability to design, configure, and troubleshoot networks of all sizes. Students learn the basics of network design, including how to identify network requirements and determine proper network architecture. Students are introduced to network models. Students also learn about internet protocol and the basics of routing data on a network. Students learn about network security issues and network management. Lastly, students learn about network operating systems and their role in connecting computers and facilitating communications.

Course Objectives

Throughout the course, you will meet the following goals:

- Learn about the design and functions of computer networks and network operating systems
- Analyze network objectives to meet customer needs effectively
- Identify requirements to support network users, applications, and devices
- Understand network architecture and topology, protocols, and services of local and wide area networks
- Identify principles and operation of equipment like wire and circuits, as well as of standards such as open system interconnection, TCP/IP, and high-speed networking
- Demonstrate knowledge of security requirements and data protection on a network, as well as the role of security tools such as routers, firewalls, and VPNs

Student Expectations

This course requires the same level of commitment from you as a traditional classroom course. Throughout the course, you are expected to spend approximately 5–7 hours per week online on:

- Interactive lessons that include a mixture of videos, readings, and tasks
- Assignments in which you apply and extend learning in each lesson
- Assessments, including quizzes, tests, and cumulative exams

Communication

Your teacher will communicate with you regularly through discussions, email, chat, and system announcements. You will also communicate with classmates, either via online tools or face to face, as you collaborate on projects, ask and answer questions in your peer group, and develop your speaking and listening skills.

Grading Policy

You will be graded on the work you do online and the work you submit electronically to your teacher. The weighting for each category of graded activity is listed below.

Grading Category	Weight
Lesson Quizzes	20%
Unit Tests	20%
Cumulative Exams	20%
Assignments	10%
Projects	30%
Additional	0%

Scope and Sequence

When you log into Edgenuity, you can view the entire course map—an interactive scope and sequence of all topics you will study. The units of study are summarized below:

- Unit 1:** Introduction to Network Design
- Unit 2:** Networking Models and Local Area Networks
- Unit 3:** Internet Protocol (IP): Addressing and Routing
- Unit 4:** Wide Area Networks and Network Security
- Unit 5:** Network Management and Network Operating Systems