

# Lassen Community College Course Outline

## CS 151 The Bits and Bytes of Computer Networking

0.0 units

### I. Catalog Description

This is the second of five courses that aims to prepare students for a role as an entry-level IT Support Professional. Once all five courses are completed students will be eligible for the IT Support Professional Certificate. This course provides a full overview of computer networking. Students will learn everything from the fundamentals of modern networking technologies and protocols to an overview of the cloud to practical applications and network troubleshooting. This course covers a wide variety of IT topics and can be taken as a standalone course and will give students entry level IT skills in Troubleshooting, Ipv4, the Network Model and Domain Name Systems (DNS). This course has been approved for online and hybrid delivery.

**Prerequisite(s):** None

Transferable: Not transferable

30 hours lecture

Scheduled: Fall & Spring

### II. Coding Information

Repeatability: Not Repeatable, Take 1 Time

Grading Option: Pass/No Pass

Credit Type: Non Credit

TOP Code: 070100

### III. Course Objectives

#### A. Course Student Learning Outcomes

Upon completion of this course the student will be able to:

1. Demonstrate knowledge of different layers and protocols in network transmission.
2. Apply the concepts of DNS and DHCP to connect computers to various networks.
3. Identify appropriate troubleshooting procedures and apply them to real world scenarios.

#### B. Course Objectives

Upon completion of this course the student will be able to:

1. Describe computer networks in terms of a five-layer model.
2. Understand all of the standard protocols involved with TCP/IP communications.
3. Grasp powerful network troubleshooting tools and techniques.
4. Learn network services like DNS and DHCP that help make computer networks run.
5. Understand cloud computing, everything as a service, and cloud storage.

### IV. Course Content

- A. Introduction to Networking
- B. The Network Layer
- C. The Transport and Application Layers
- D. Networking Services

- E. Connecting to the Internet
- F. Troubleshooting and the Future of Networking

## V. Assignments

### A. Appropriate Readings

1. Technical Support Journals
2. Networking basics articles
3. Online IT Tech blogs
4. Network Component reviews

### B. Writing Assignments

1. A paper on the history and future of cloud computing and how it differs from traditional server based networks.

### C. Quizzes

Weekly online quizzes

### D. Virtual labs

Qwiklabs activities to simulate detecting, troubleshooting and fixing network connectivity problems

## VI. Methods of Evaluation

### Traditional Classroom Evaluation

Term paper (topic choice, thesis statement, outline, bibliography, rough draft, final draft), homework (analysis of current economic problems), classroom discussion, essay, journals, and multiple choice problems.

### Hybrid Evaluation

All quizzes and exams will be administered during the in person class time. Students will be expected to complete online assignments and activities equivalent to in class assignments and activities for the online portion of the course. Electronic communication, both synchronous and asynchronous will be evaluated for participation and to maintain effective communication between instructor and students.

### Online Evaluation

A variety of methods will be used, such as: research papers, asynchronous and synchronous discussions (chat/forum”, online quizzes and exams, posting to online website and email communications.

## VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Traditional Classroom Delivery | <input type="checkbox"/> Correspondence Delivery    |
| <input checked="" type="checkbox"/> Hybrid Delivery                | <input checked="" type="checkbox"/> Online Delivery |

### Traditional Classroom Delivery

Lecture, discussion, group work, problem analysis, and interactive exercises

### **Hybrid Delivery**

A combination of traditional classroom and online instruction will be utilized. Each semester a minimum of 10 hours will be taught face-to face by the instructor and the remaining hours will be instructed online through the technology platform adopted by the District. Traditional class instruction will consist of exercises/assignments, lectures, visual aids, and practice exercises. Online delivery will consist of exercises/assignments, lecture posts, discussions, adding extra resources and other media sources as appropriate.

### **Online Delivery**

Participation in forum based discussions. Online exercises/assignments contained on website. Web based video vignettes with discussion paper, email communications, postings to forums, online lecture notes and web links will compromise the method of instruction

## **VIII. Representative Texts and Supplies**

All course materials, including readings and texts are available through Coursera

## **IX. Discipline/s Assignment**

Computer Science, Computer Information Systems

## **X. Course Status**

Current Status: Pending

Original Approval Date: 12/01/2020

Course Originator: Melinda Duerksen

Board Approval: 12/15/2020

Chancellor's Office Approval: 01/21/2021

Revised by:

Curriculum/Academic Standards Committee Revision Date: