CS150: Introduction to Computer Networks and Security

Assignment 1 Designing a Basic Network Weight: 15%

Learning Outcome 2: Explain different types of networks and their applications

Due Date: 1st October 2023, 11:55pm

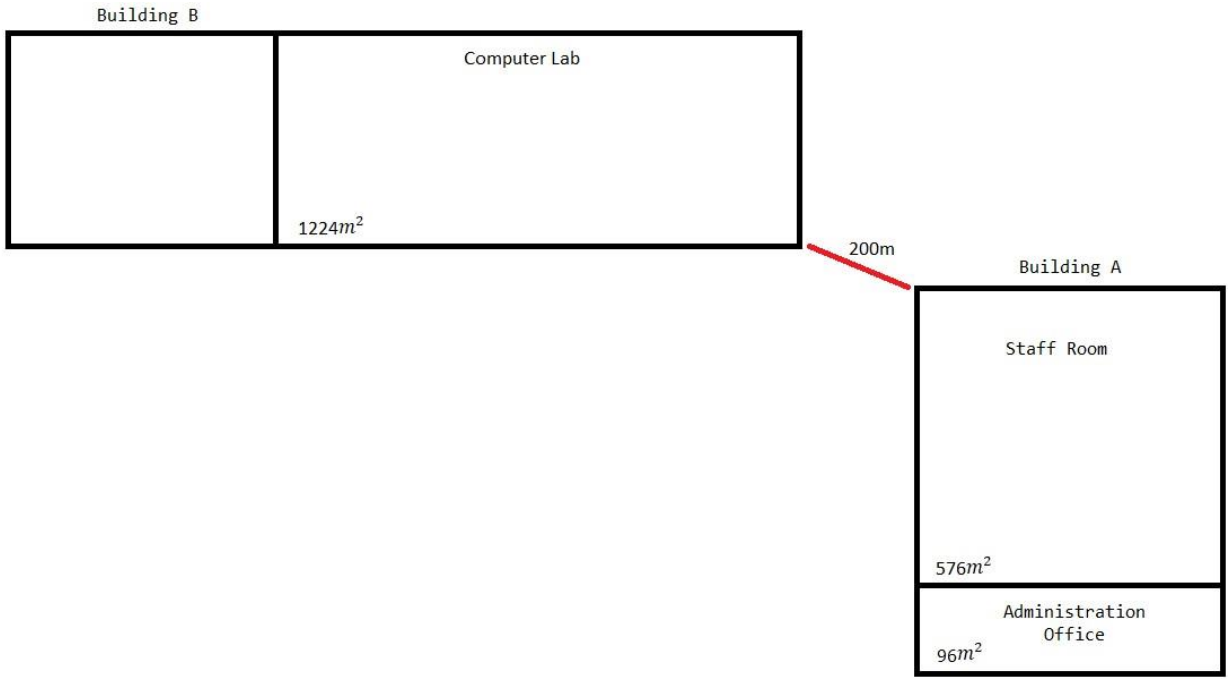
Group: Maximum 3 Members

Scenario

You are part of a startup that has landed an opportunity to design the network infrastructure for Imaginary College. The project is fully sponsored, and budget is not a constrain for the college.

The sponsor wants a proposal for the network infrastructure design.
You are required to design the college's network infrastructure with the following requirements:

Physical Topology:



Building		Room	Specification
	A	Administration Office	4 Staffs 2 Printers
		Staff Room	10 Staffs 1 Printer
	B	Computer Lab	15 Students 1 Instructor 2 Printer 1 Projector 1 Wireless Display Gateway

You can add any other hardware device that you think will benefit the students or users of this lab for better functionality. Justify your reasons for each device.

You have to design a network.

Considerations

1. There are no budgetary constrains however the sponsor would love to see a cost optimized design.
2. All mentioned staff and students are to be provisioned with controlled network connectivity.
3. Choose appropriate devices, cables with relevant specifications.
4. Your design proposal must include:
    a) Cover page
    b) Table of Content
    c) Executive Summary
    d) Proposal
        a. Design Diagram
        b. Internet Connectivity
        c. Bill of materials
        d. Purpose of each material
        e. Reason for selection of material
    e) Security Details
    f) Monitoring Details

Please note that your online assignment submission box must also include Cisco Packet Tracer files that consist of working solutions for the:

- **Administrative office**
- **Staff Room**
- **Computer Lab.**

Recommendation

You will submit a PDF document for the proposal. Plan your work well. You can use any software to draw a layout for example MS Visio. At the end, you can take a snapshot of whatever software you are using and paste the design in word for the report.

Plagiarism

Any kind of plagiarism or cheating; like submission of work that is not your own will lead to a ZERO (0) score AND you will be subject to disciplinary action. Discussing is permitted however; you must avoid giving your working copy or the final assignment file to anyone. This increases the risk of your assignment being cited as a plagiarized work.

For this course, plagiarism detection software will be actively used to identify similar assignments. ALL detected assignments will receive a mark of ZERO and will be referred to the disciplinary committee.

Submission Instruction:

You will submit a pdf document and name your assignment according to your group/team name:
Example: Teamname_Assign1.doc

Submit your completed assignment using the Assignment 1 Drop Box available on the CS150 course page on Moodle before the due date. A late submission drop box will be created as well for delayed assignments. Email submissions will not be accepted.

A declaration page stating contribution of work by each member with signature. Late submission will have a penalty of minus 2% per day. Each group makes one submission only, NOT every member.

Question	**CBOK**	**Unsatisfactory (0 – 49%)**	**Satisfactory (50 -75%)**	**Good (76 – 100%)**
Write up (a)	Design (15%)	X. Inappropriate design of network XI. Plagiarism	VI. Appropriate choice of the architecture and design	I. All satisfactory II. Some form of creativity or innovation to architecture and design

Teamwork Concept and issues	Communication (15%)	I. Poor presentation/ communication skills (hard to understand) II. Does not follow the given standard template III. Poor report writing (ill structured, ideas and design not well communicated, and/or poorly	III. Good presentation/ communication skills (clear and loud) IV. Able to follow the given standard template V. Effective report writing (well structured, ideas and design effectively communicated, and well formatted)	VI. All satisfactory
Logical design	Networking (30%)	I. Unable to describe most of the fundamental concepts of networking and data communication with limited supervision II. Unable to identify most of the network principles or protocols or standards and how they can be applied to loosely-coupled problems in the discipline III. Unable to apply most of the fundamental midlevel aspects of this Gradate Attribute when provided with occasional guidance	I. Can describe the most of the fundamental concepts of networking and data communication with limited supervision II. Can identify most of the network principles or protocols or standards and how they can be applied to loosely coupled problems in the discipline III. Can apply most of fundamental midlevel aspects of this Gradate Attribute when provided with occasional guidance	I. Can describe all of the fundamental concepts of networking and data communication with limited supervision II. Can identify all of the network principles or protocols or standards and how they can be applied to loosely coupled problems in the discipline III. Can apply all of fundamental midlevel aspects of this Gradate Attribute when provided with occasional guidance

Technological Resources	Hardware and Software Fundamentals (40%)	I. Not able to list all components of network architecture	I. able to list some components of network architecture	I. able to list all components of network architecture