



SECR1213 NETWORK COMMUNICATION

20242025 – SEMESTER 1

PHASE 4

Making The Connections

FACULTY OF MJIIT

Group Name: Eleven-nine

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IDENTIFY THE WORK AREAS OF OUR FLOOR PLAN

1. Floor 1 Work Areas:

- A. General Purpose Labs (2):** Both labs have multiple workstations which require network access.
- B. Video Conferencing Room:** Will require high-speed connectivity to ensure seamless connection for video conferencing purposes.
- C. Student Lounge:** Requires Wi-Fi coverage for mobile devices. The network has to be available for 24 hours a day to accommodate the needs of students.
- D. Reception:** Requires connections for only a few devices such as a computer, a phone, and visitor Wi-Fi.

2. Floor 2 Work Areas:

- A. Embedded Lab:** Requires connections for specialized equipment and student workstations
- B. Cisco Network Lab:** Requires multiple switch ports for network experiments and learning.
- C. Hybrid Classroom:** Requires both wired and wireless access for students and lecturers.

NUMBER OF CONNECTIONS, PATCH CORDS, AND SWITCH PORTS

- 1. General Purpose Labs:** As there are 30 devices in each lab, this sums up to **60 Ports**.
- 2. Video Conferencing Room:** This work area requires a connection for the conferencing system, supporting devices, and some spare capacity. We will give this room **12 Ports**.
- 3. Student Lounge:** This room is has 1 Wireless Access Point (Wi-Fi), which is connected by Ethernet. Only **1 Port** required.

4. **Reception:** Requires a connection for 1 PC, and a Wireless Access Point (Wi-Fi). Only **2 Ports** required.
5. **Embedded Lab:** 16 PC's available, We will prepare **20 Ports**. The extra slots act as spare capacity.
6. **Cisco Network Lab:** 33 PC's available, therefore **35 ports** will be given.
7. **Hybrid Classroom:** You need 1 Wireless Access Point (Wi-Fi) and some wired connections for fully-hybrid class functionality. Estimate **10 Ports**. Some ports provided as spare capacity for extra flexibility.

Total Required Ports: $60 + 12 + 1 + 2 + 20 + 35 + 10 = 140$ ports

Patch Cords: 140 Patch Cords (Each device needs a patch cord to connect to each port. Hence 1 port = 1 Patch cord).

Link Type	Model	Justification	Units
Ports	Ethernet Ports Cat6 (Category 6)	Supports wired connections. Supports up to 1Gbps	140 units
Patch Cords	Cat6 Patch cable	Each port needs a patch cord for connection. Supports up to 1Gbps.	140 units
Switch	Cisco Catalyst 9200 Series (48-port and 24-port)	Stackable. Two options of 24/48 ports increases flexibility of usage	5x 48-port switches 2x 24-port switches

CABLE TYPES AND LENGTH

1. Cable Types

Ethernet: Cat6 (Category 6) Cables

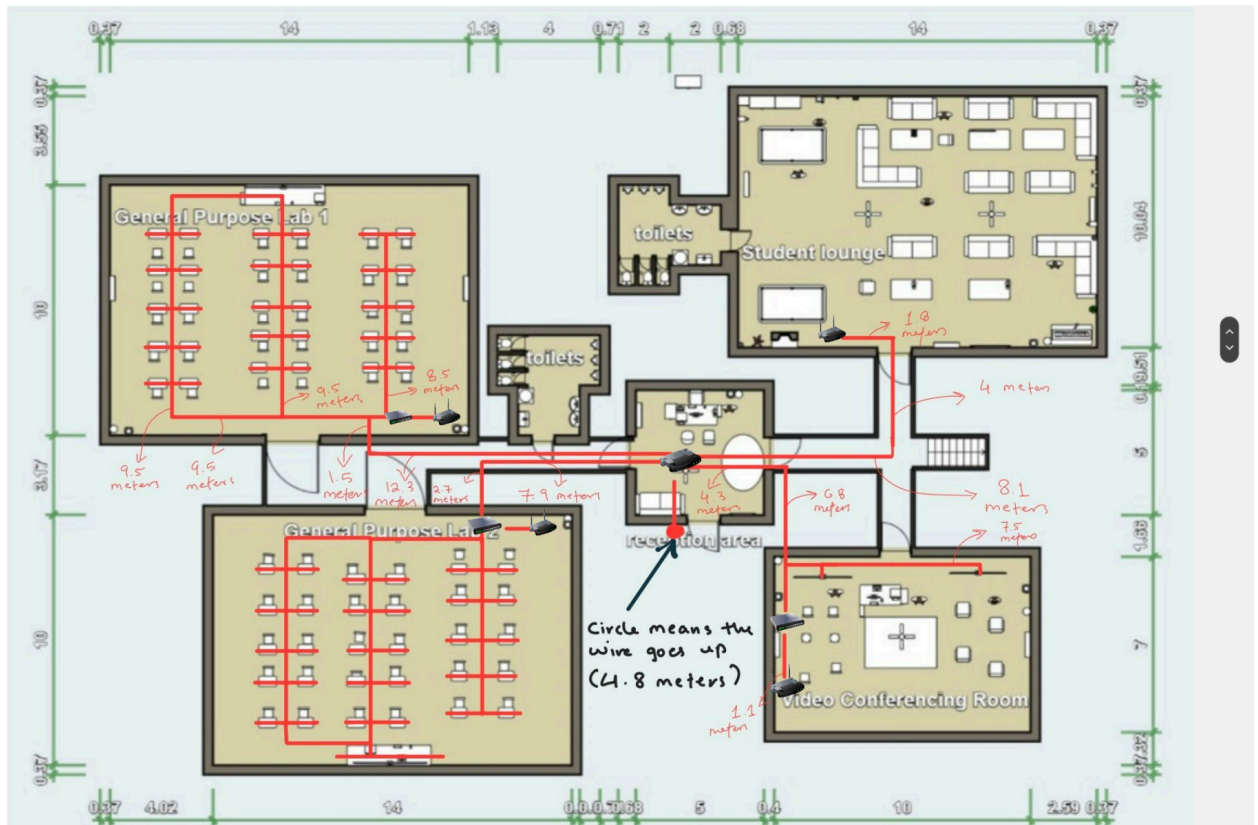
- a. It has high performance and supports up to 10Gbps for shorter distance cable connections.
- b. Ethernet is required for all wired connections in the network.
- c. Cat6 cables are the most cost-effective option, suitable for both labs and classrooms, and will ensure minimal latency for seamless connection.

2. Fiber Optic Cables

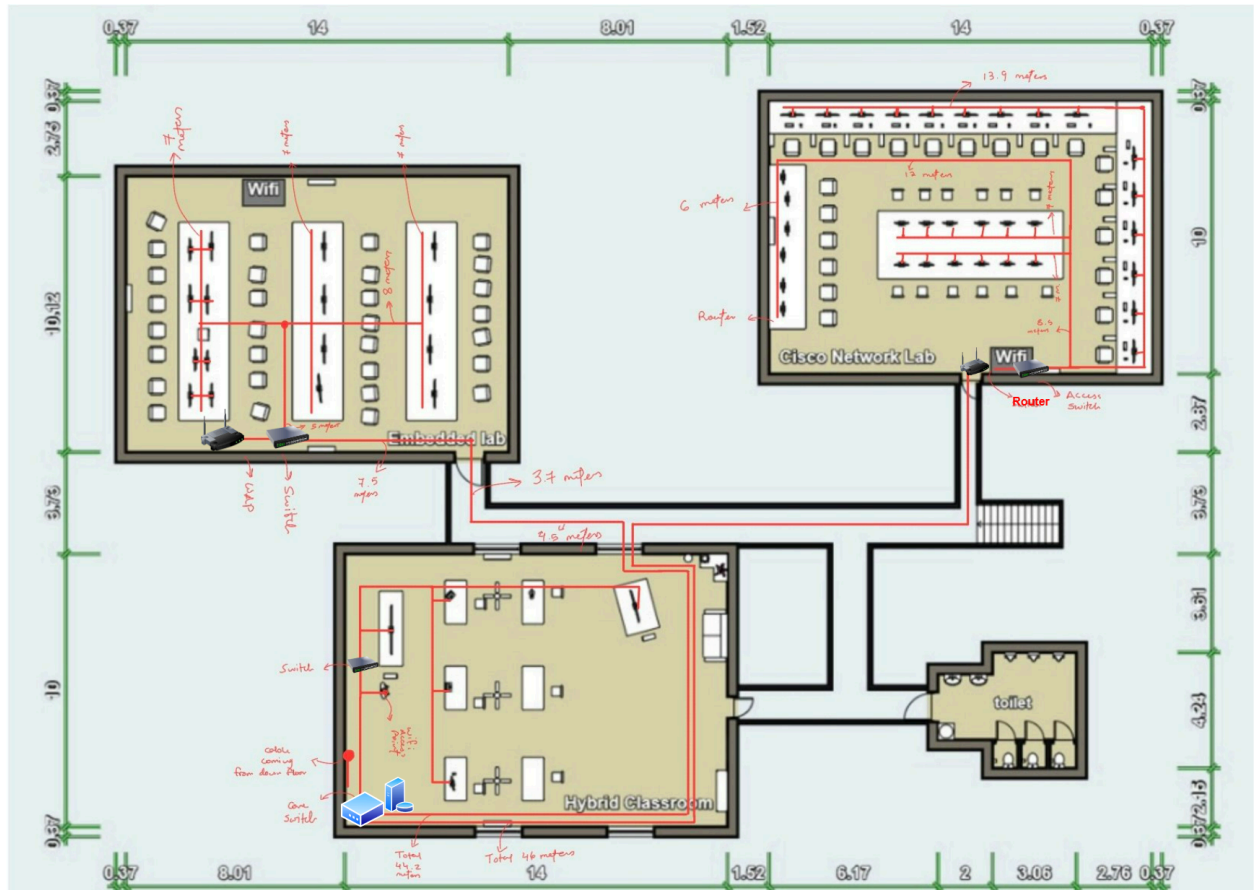
- Fiber Optic Cables are chosen for connection core switches across the 2 floors due to its high bandwidth and long-distance capabilities.
- These cables provide extremely fast and reliable backbone(vertical) connectivity between the 2 floors. Essential for low latency connection.

CABLING PLAN SKETCH

Floor 1 Sketch:



Floor 2 Sketch:



Measuring Floor Plan Distances:

- Reassess the sketches to identify the maximum distances between the MDF (Main Distribution Facility) and work areas.

- Consider:
 - Horizontal cable runs (measured along pathways).
 - Vertical cable runs (e.g., up walls or equipment racks).
 - Add an allowance for corners (typically 10-20% extra length for realistic cable routing).

Scale and Accuracy:

- Include a scale bar on the sketches to validate proportional distances.
- Use a clear ratio like 1 cm = 1 meter for easy interpretation.

A summarized table of measured cable lengths, matching each length with the technology used:

Floor	Room	Type	Measured Distance (in meters)	Note
Floor 1	General Purpose Lab 1	Cat6	37.7	
	General Purpose Lab 2	Cat6	37.7	
	Student Lounge	Cat6	1.8	

	Video Conferencing Room	Cat6	15.4	
	Reception	Cat6	40	
Floor2	Embedded Lab	Cat6	41.5	
	Cisco Network Lab	Cat6	64.2	
	Hybrid Classroom	Cat6	90.2	
Total			383.295	Measured with extra 15% allowance

MEETING MINUTES TASK 4:

DATE	16 DEC 2024 415PM
LOCATION	Student Lounge
AGENDA	Completing Task 4
MEETING MC	Muntasir Rahaman

ATTENDANCE:

Muhd Affiq Firdaus (A23MJ5083)	4:15PM - 11:40PM
Muntasir Rahman Sirkhazi (A23MJ0013)	4:15PM - 11:40PM
MOHAMED G. S. (A23MJ0009)	4:15PM - 11:40PM
Maarof Saqr Yousef (A23MJ4006)	4:15PM - 11:40PM
Helal, Muhieddin Ibrahim (A23MJ4004)	4:15PM - 11:40PM
Muntasir, Mohamed G.S (18/12/2024)	9:00PM - 3:40AM

MINUTES:

No.	Items Discussed	Ideas/Suggestion	Person In Charge
1	Objectives/ Delegation of the task	Mohammed G.S. assigned each member their own task	Mohammed G.S.
2	Analysis of Work Area	Saqr's job is to analyze the office area to identify the cable requirements	Maarof Saqr

3	Devices/Cable selection	Affiq researched on the most optimal choice of cables and switches	Affiq
4	Cable Length Calculation	Helal Calculated the approximate total cable length	Helal
5	Sketches	Muntasir did the sketching of the cable plan	Muntasir
6	Review the calculation and sketching process	All members reviewed the process	All members
7	Meeting minutes and Rubric-Proof Check	All members helped compiling the meeting minutes and rubrics checking	All members

RUBRIC-CHECK

RUBRIC-CHECK

TASK 4	
ITEM	MARKS
<i>Identify connections and cables</i>	
Connections, patch cord, switchport identified	2
Cable length and types identified	2
Choices are suitable and appropriate	2
Sketch of PC and Network device arrangement (+cable) clearly shown and labelled	1
Scale: is appropriate	1
TOTAL	8

Based on the given rubric template, we believe we scored a total of 8/10.