



**UTM**  
UNIVERSITI TEKNOLOGI MALAYSIA

Malaysia-Japan  
International  
Institute of Technology  
(MJIIT)

## **SECR1213 NETWORK COMMUNICATION**

**20242025 – SEMESTER 1**

### **PHASE 4**

### **MAKING THE CONNECTIONS – LAN and WAN**

### **FACULTY OF MJIIT**

### **GROUP A&C**

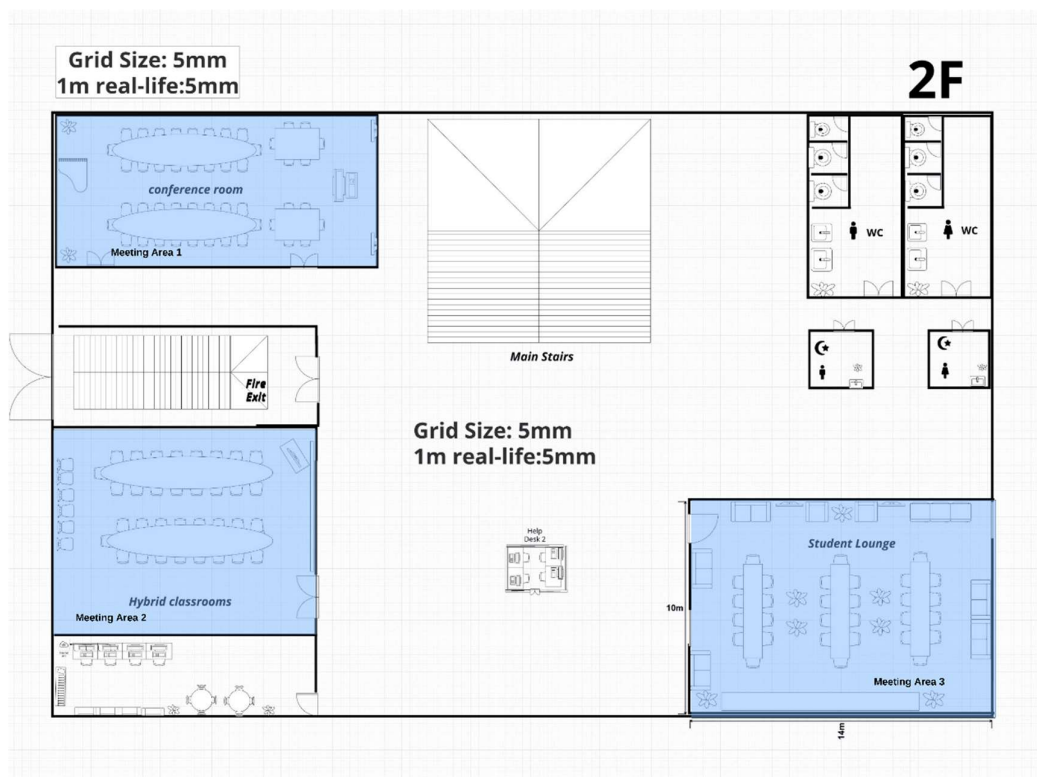
<b>NAME</b>	<b>MATRIC ID</b>
<b>Kahlan Sultan Mohammed</b>	<b>A23MJ4021</b>
<b>Liu Ruoyang</b>	<b>A23MJ4022</b>
<b>Buguoshun</b>	<b>A23MJ4019</b>
<b>Abdulrahman Siad</b>	<b>A23MJ3061</b>

# 1. Work Areas identification

## a. First floor



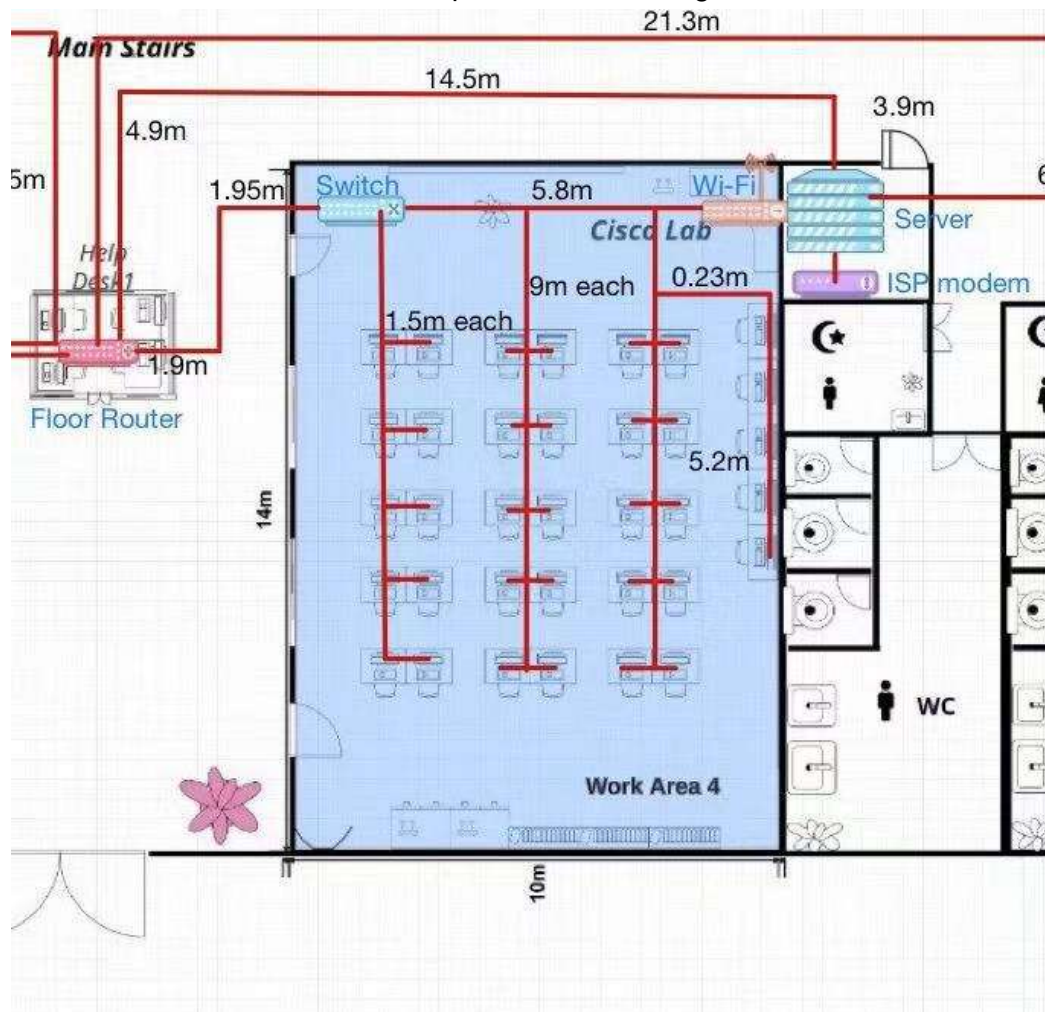
## b. Second floor



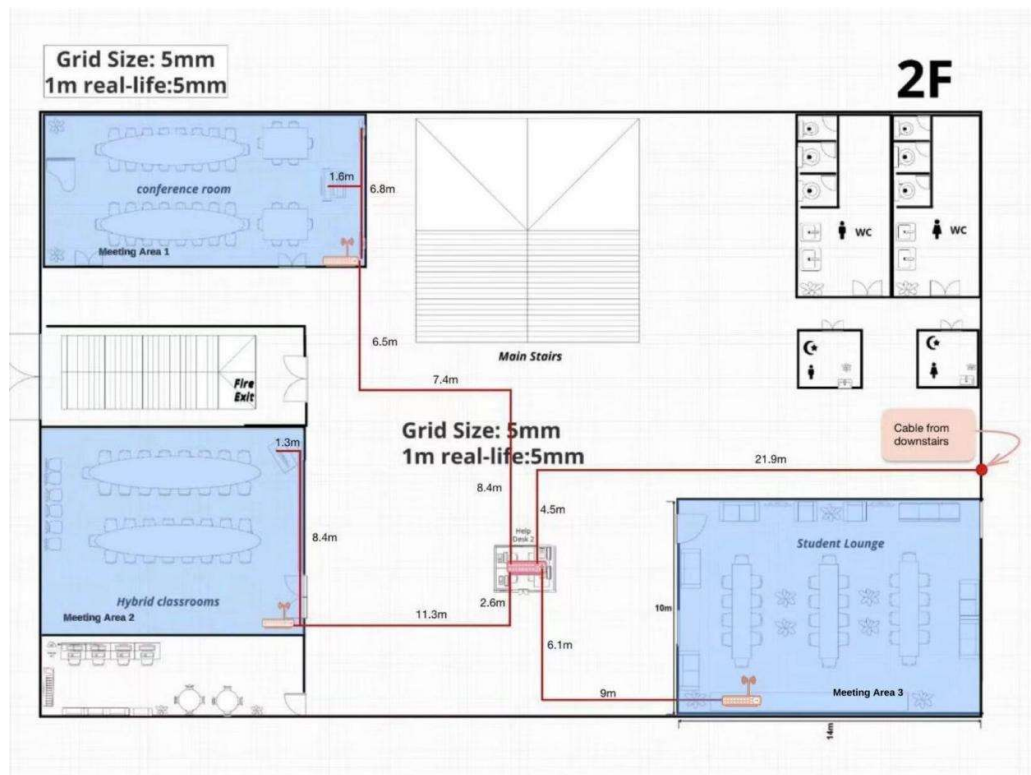
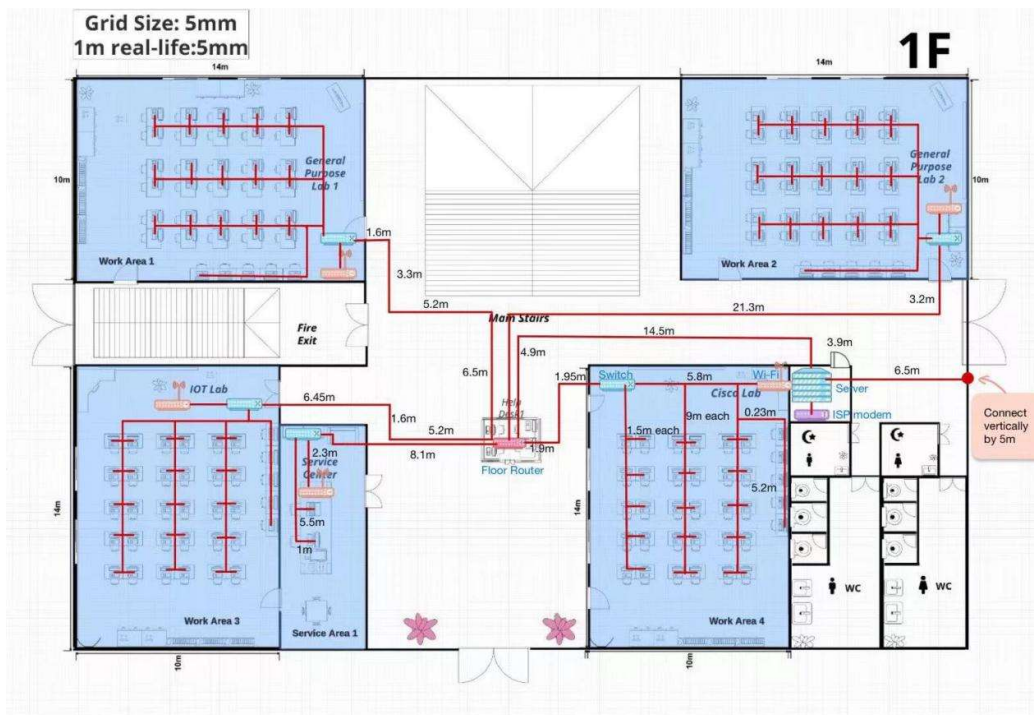
**Explanation:** We have divided the workspace into different sections. The four laboratories on the first floor share similar characteristics and layouts, so they are collectively referred to as "Work Area" and labeled as Work Area 1-4. The Service Center on the first floor is labeled as Service Area 1. On the second floor, the conference room and hybrid classroom are primarily used for classes and meetings, and are therefore labeled as Meeting Area 1 and 2, respectively. Student Lounge, designated as Meeting Area 3, is primarily used for students to rest and study. It can also serve as a backup space for holding meetings when other meeting areas are occupied.

## 2. Cabling Simulation

We use Work Area 4 as an example of in-lab cabling.



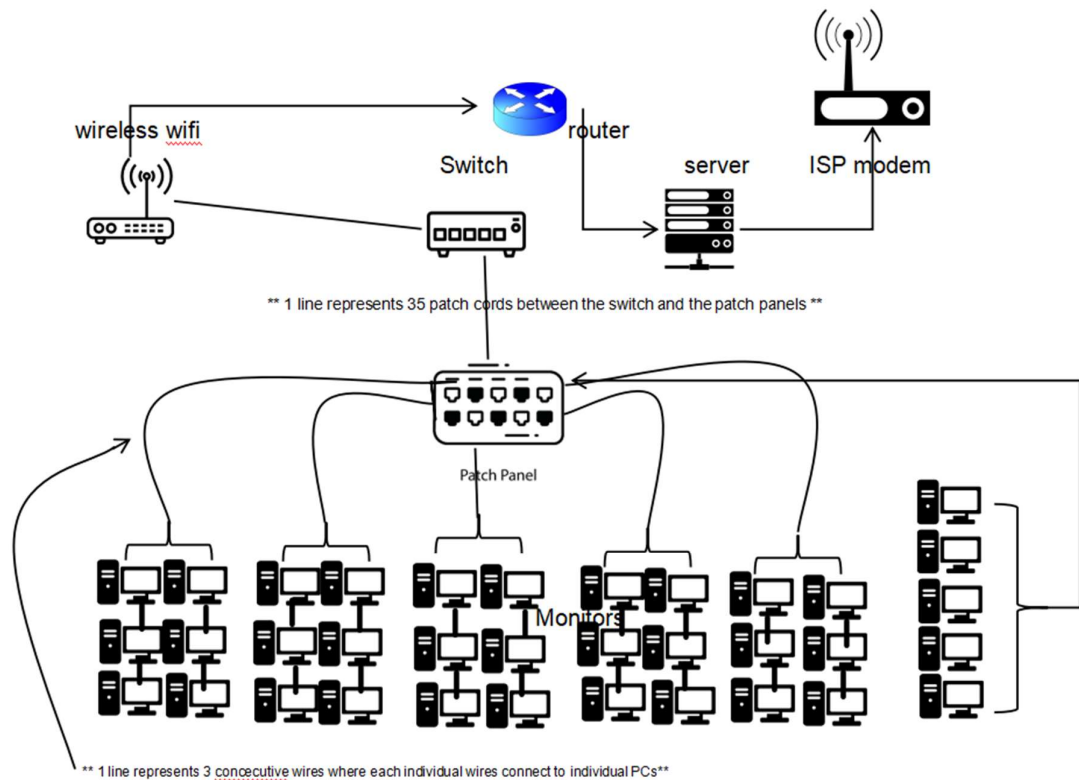
Since the four labs share similar characteristics and equipment, we have provided the labels for each device in Work Area 4 and the estimated cable lengths based on scaled measurements as a reference.



## Network Topology:

This section entails the details of the network topology design for each workstation and meeting place

*For each section*



workstation sections (1-4) on the first floor have the same layout, defined by this diagram.

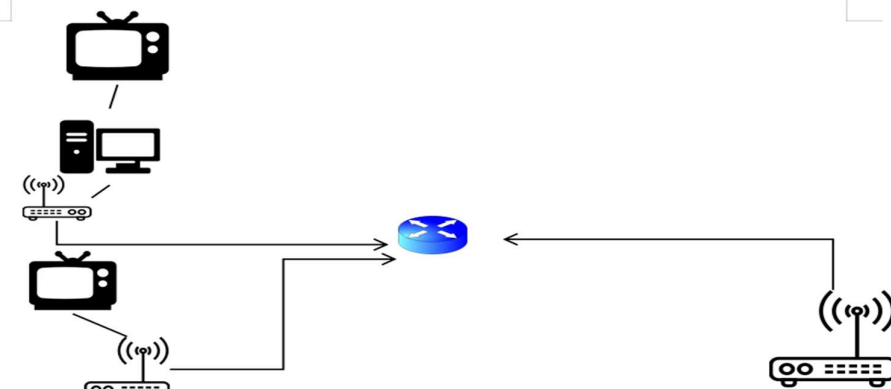


Diagram represents topology on second floor



## For the whole network

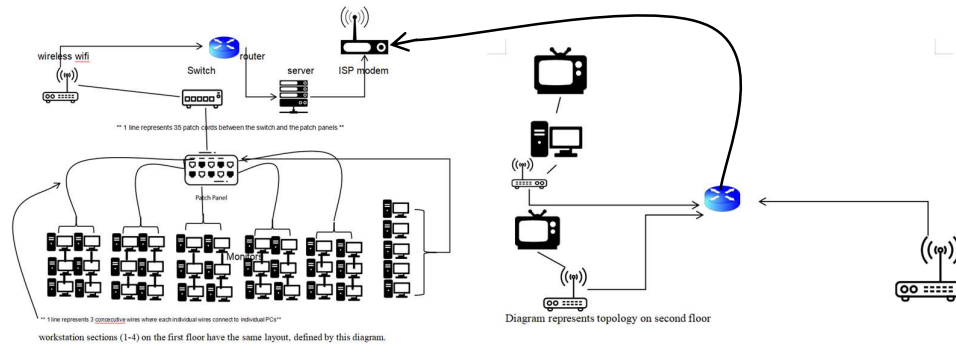
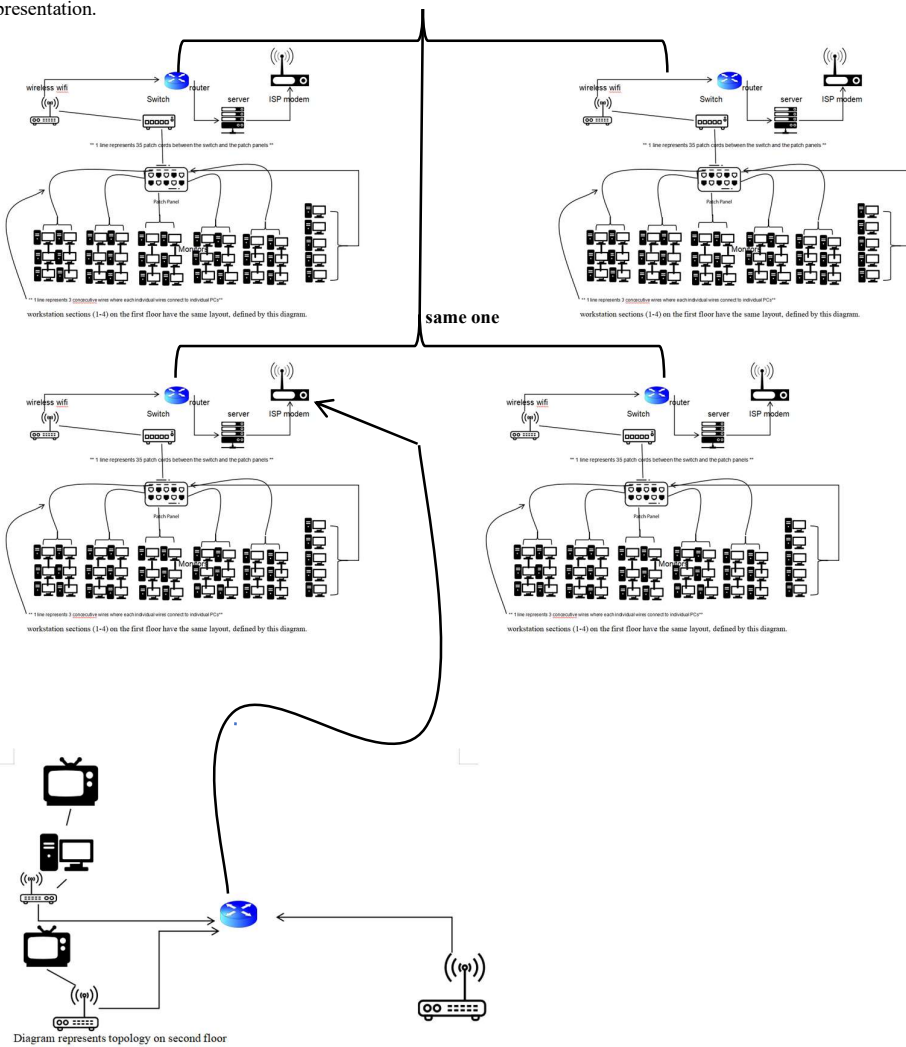


Diagram represents Topology for the whole network, keep in mind the workstations have been merged into one for easier representation.



Full topology diagram for the network, refer to previous diagram for more details.

### 3. Cabling Specifications

#### a. Cable Length

Horizontal:

Floor	Area	Cable length required per unit (m)	Quantity	Total cable length required (m)
1	Work Area 1-4	325	4	1300
1	Service Area 1	23.5	1	23.5
1	Others	98.5	1	98.5
2	Meeting Area 1	15	1	15
2	Meeting Area 2	18	1	18
2	Meeting Area 3	15	1	15
2	Others	63	1	63

Vertical:

Area	Length(m)
Floor1-Floor2	5

Total:

Area	Total(m)
Floor1	1422
Floor2	111
Vertical	5
<b>Total</b>	<b>1538</b>

#### b. Cable Type and Amount

For the cabling within the work areas, specifically between workstations and patch panels, we opted for Cat6 Ethernet copper cables due to their durability and high performance. In the four laboratories (Work Areas 1-4) on the first floor, a total of **140** cables (35x4) will be used to connect the workstations to the patch panels. Similarly, 140 patch cords will connect these patch panels to their respective switches.

To establish connections between all the work areas (Work Areas 1-4 and Service Area 1) to the first-floor router, **4** fibre optic cables are allocated.

For the second floor, Meeting Area 1 and Meeting Area 2 connections involve the following:

1. **4** Cat6 Ethernet cables:
  - a. **2** cables to connect the smart TVs in Meeting Area 1 to its designated router.
  - b. **1** cable to connect the smart TV and Ethernet ports in Meeting Area 2 to its router.
  - c. **1** cable will connect the wireless router to the floor router to provide network connectivity.

The routers for Meeting Area 1-3 and the first-floor router are all connected to the server room using **4** fibre optic cables, linking them to the ISP modem through the server room. This ensures a high-speed backbone for the network infrastructure.



## Meeting Minutes

DATE/TIME		16 <sup>th</sup> December 2024	
LOCATION		Webex online meeting	
AGENDA		Working on Task 4	
MEETING MC		Abdul-Rahman Siad	
ATTENDENCE			
NAME	TIME		REASON OF ABSENCE
Kahlan Sultan Mohammed	11:00 pm		N/A
Abdulrahman Siad	11:40 pm		
Buguoshun	11:00 pm		
Liu Ruoyang	11:40 pm		
MINUTES			
NO.	ITEM DISCUSSED	IDEAS/SUGGESTIONS AND PERSON GIVING IT	PERSON IN CHARGE AND DATE
1	Identification of the connections	Everyone participates in identified the connections between the wires, workstations, and equipment.	Everyone (16/12)
2	Wire drawings	Sketching the cables on the floor layout provided by Liu Ruoyang	Liu Ruoyang (16/12)
3	Wire length identification	Determine the wire lengths using the information provided by Kahlan and Abdul-Rahman	Kahlan Sultan (16/12) Abdul-Rahman Siad (16/12)
4	Diagrams of topology	Drawing the topology diagrams; given by Bu Guoshun	Bu Guoshun (17/12)

5	Meeting ended	Everybody departing the meeting	Everyone(17/12)
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### Projected Marks

ITEM	MARKS
<b>Identify connections and cables</b>	
Connection, patch cord, switchport identified	2/2
Cable length and types identified	2/2
Choices are suitable and appropriate	2/2
Sketch of PC and Network devices arrangement (+cable) clearly shown and labelled	3/3
Scale: is appropriate	1/1
<b>Total</b>	<b>10/10</b>