

Network Project for Teaching and Testing College

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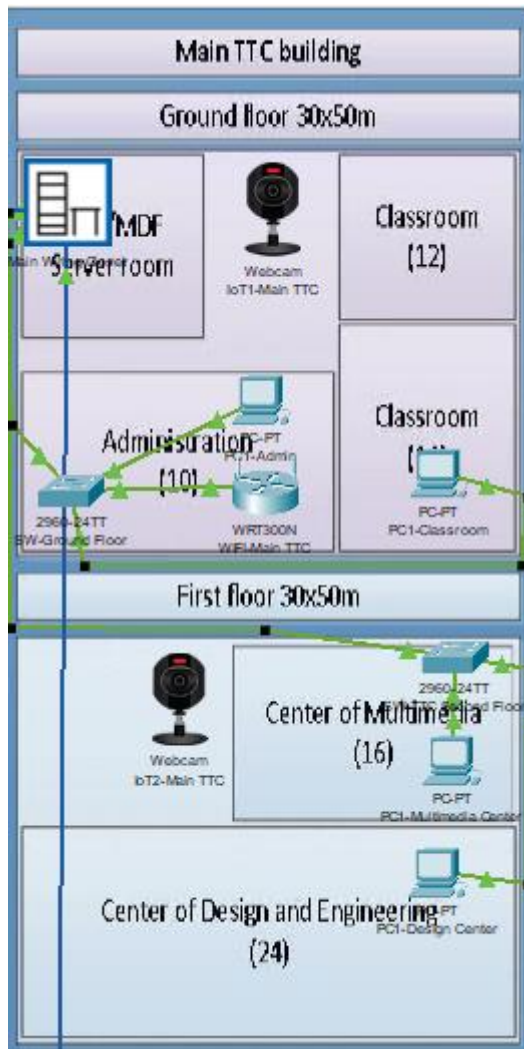
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1. Introduction

1.1. Teaching and Testing College plan

1.1.1. Main TTC building



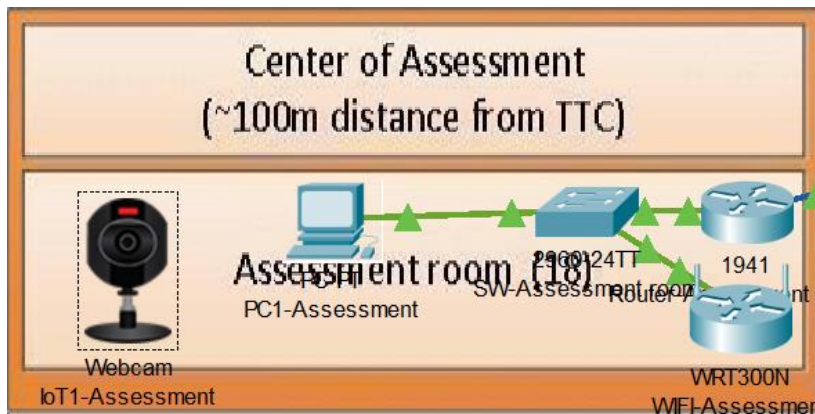
1.1.1.1. Ground floor

- Server room with Internet inlet
- Class (12 CW)
- Class (14 CW)
- Administration (10 CW)

1.1.1.2. Second floor

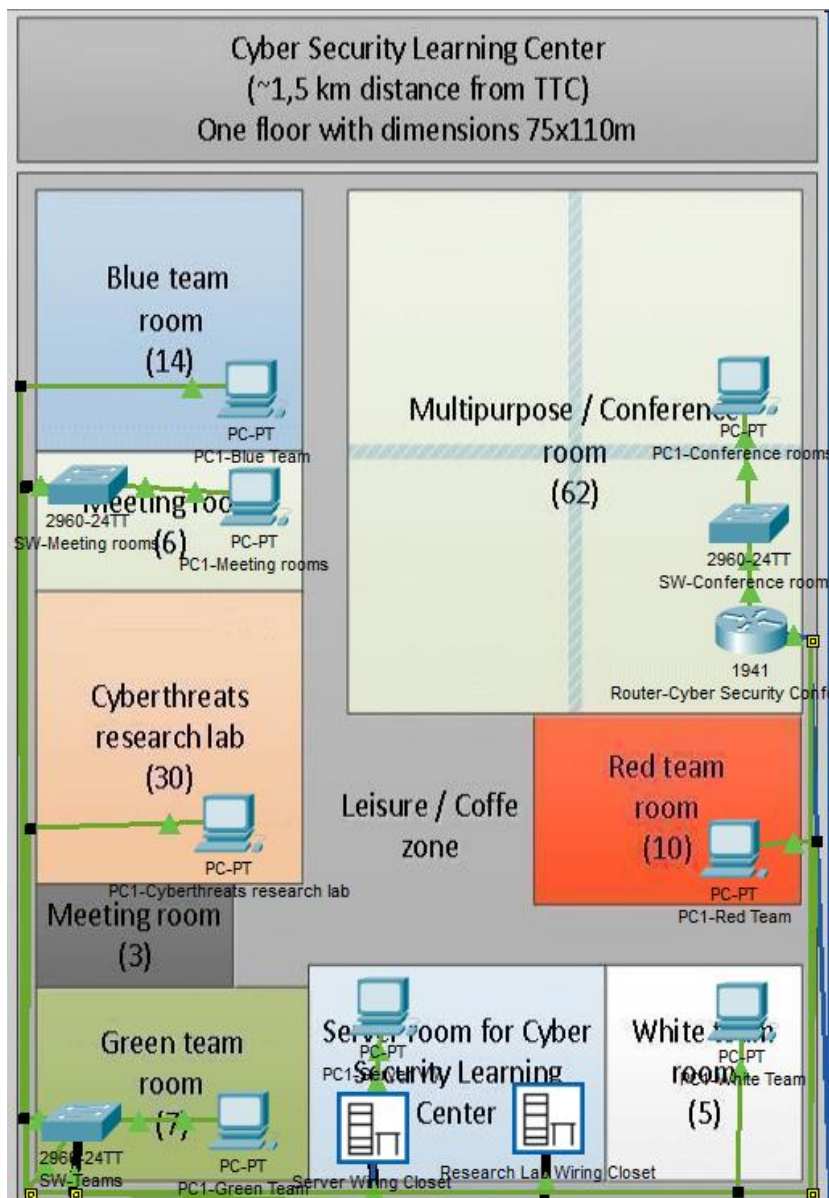
- Multimedia learning center (16 CW)
- Design and engineering department (24 CW)

1.1.2. Center of Assessment

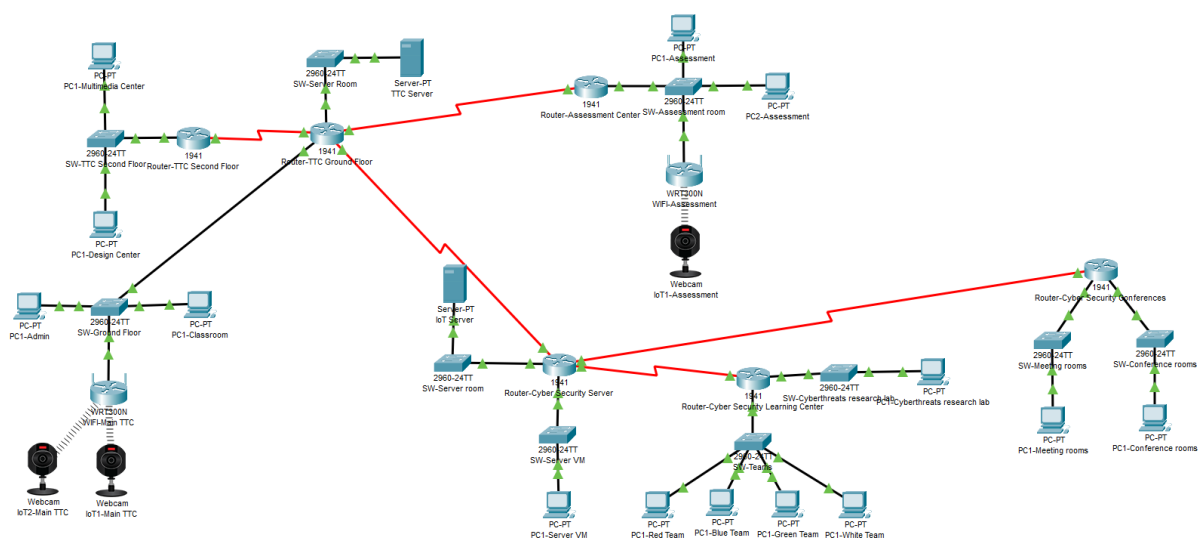


- Assessment room (18 CW)

1.1.3. Cyber security learning center



- ### 1.1.4. All network



2. Network

2.1. IP address

2.1.1. Public IPv4 address

193.219.42.0/24

2.1.2. Public IPv6 address

2001:77C:FAC1::/48

2.1.3. IPv4 Subnets

Subnet Name	Needed Size	Allocated Size	Address	Mask	Dec Mask	Assignable Range	Broadcast
Second floor	40	62	193.219.42.0	/26	255.255.255.192	193.219.42.1 - 193.219.42.62	193.219.42.63
Ground floor	26	30	193.219.42.64	/27	255.255.255.224	193.219.42.65 - 193.219.42.94	193.219.42.95
Assessment room	18	30	193.219.42.96	/27	255.255.255.224	193.219.42.97 - 193.219.42.126	193.219.42.127
Conference and Meeting rooms	6	6	193.219.42.128	/29	255.255.255.248	193.219.42.129 - 193.219.42.134	193.219.42.135
Cyberthreats research lab and Teams rooms	6	6	193.219.42.136	/29	255.255.255.248	193.219.42.137 - 193.219.42.142	193.219.42.143
VM	6	6	193.219.42.144	/29	255.255.255.248	193.219.42.145 - 193.219.42.150	193.219.42.151
Assessment Routers	2	2	193.219.42.152	/30	255.255.255.252	193.219.42.153 - 193.219.42.154	193.219.42.155
IoT Server	2	2	193.219.42.156	/30	255.255.255.252	193.219.42.157 - 193.219.42.158	193.219.42.159
IoT server - Cyberthreats lab and Teams Routers	2	2	193.219.42.160	/30	255.255.255.252	193.219.42.161 - 193.219.42.162	193.219.42.163
IoT server - Conference and Meeting Routers	2	2	193.219.42.164	/30	255.255.255.252	193.219.42.165 - 193.219.42.166	193.219.42.167
TTC Routers	2	2	193.219.42.168	/30	255.255.255.252	193.219.42.169 - 193.219.42.170	193.219.42.171
TTC Server room	2	2	193.219.42.172	/30	255.255.255.252	193.219.42.173 - 193.219.42.174	193.219.42.175
TTC-IoT Routers	2	2	193.219.42.176	/30	255.255.255.252	193.219.42.177 - 193.219.42.178	193.219.42.179

2.1.4. IPv6 Subnets

Subnet ID	Subnet Address	Host Address Range	Notation
1	2001:077c:fac1::	2001:77c:fac1:: - 2001:77c:fac1::	2001:77c:fac1::/64
2	2001:077c:fac1:0001::	2001:77c:fac1:1:: - 2001:77c:fac1:1::	2001:77c:fac1:1::/64
3	2001:077c:fac1:0002::	2001:77c:fac1:2:: - 2001:77c:fac1:2::	2001:77c:fac1:2::/64
4	2001:077c:fac1:0003::	2001:77c:fac1:3:: - 2001:77c:fac1:3::	2001:77c:fac1:3::/64
5	2001:077c:fac1:0004::	2001:77c:fac1:4:: - 2001:77c:fac1:4::	2001:77c:fac1:4::/64
6	2001:077c:fac1:0005::	2001:77c:fac1:5:: - 2001:77c:fac1:5::	2001:77c:fac1:5::/64
7	2001:077c:fac1:0006::	2001:77c:fac1:6:: - 2001:77c:fac1:6::	2001:77c:fac1:6::/64
8	2001:077c:fac1:0007::	2001:77c:fac1:7:: - 2001:77c:fac1:7::	2001:77c:fac1:7::/64
9	2001:077c:fac1:0008::	2001:77c:fac1:8:: - 2001:77c:fac1:8::	2001:77c:fac1:8::/64
10	2001:077c:fac1:0009::	2001:77c:fac1:9:: - 2001:77c:fac1:9::	2001:77c:fac1:9::/64
11	2001:077c:fac1:000a::	2001:77c:fac1:a:: - 2001:77c:fac1:a::	2001:77c:fac1:a::/64

2.2. RIP Routing

2.2.1. IPv4:

2.2.1.1. Console

```
router rip
version 2
network 193.219.42.0
```

2.2.1.2. UI

RIP Routing (v2)

Network

Add

Network Address

193.219.42.0

2.2.2. IPv6

```
interface GigabitEthernet0/0

ipv6 address 2001:77C:FAC1:4::1/64
ipv6 rip R3 enable
```

2.3. DHCP

2.3.1.1. IPv4 UI

DHCP

Interface FastEthernet0 Service ☒ On ☐ Off

Pool Name serverPool

Default Gateway 193.219.42.173

DNS Server 193.219.42.174

Start IP Address : 193 219 42 172

Subnet Mask: 255 255 255 252

Maximum Number of Users : 0

TFTP Server: 0.0.0.0

WLC Address: 0.0.0.0

Add Save Remove

Pool Name	Default Gateway	DNS Server	Start IP Address	Subnet Mask	Max User	TFTP Server	WLC Address
designPool	193.219....	193.219....	193.219....	255.255....	29	0.0.0.0	0.0.0.0
serverPool	193.219....	193.219....	193.219....	255.255....	0	0.0.0.0	0.0.0.0
lotServerPool	193.219....	193.219....	193.219....	255.255....	0	0.0.0.0	0.0.0.0
groundFloorPool	193.219....	193.219....	193.219....	255.255....	29	0.0.0.0	0.0.0.0
secondFloorPool	193.219....	193.219....	193.219....	255.255....	61	0.0.0.0	0.0.0.0
assessmentPool	193.219....	193.219....	193.219....	255.255....	29	0.0.0.0	0.0.0.0

2.3.1.2. IPv6 UI

DHCPv6

Interface FastEthernet0 Service ☒ On ☐ Off

DHCPv6 Pool ttcPool

DHCPv6 Pool

Pool List: ttcPool Create Pool Remove Pool

DNS Server: Domain Name:

IPv6 Address Prefix

Prefix	Prefix Length	Valid Lifetime	Preferred Lifetime
2001:77C:FAC1::	64	2592000	604800
2001:77C:FAC1::	64	2592000	604800

Create Edit Remove

IPv6 Prefix-Delegation

Prefix	DUID	Local Pool	Valid Lifetime	Preferred Lifetime
--------	------	------------	----------------	--------------------

Create Edit Remove

IPv6 Local Pool

Pool Name	Prefix	Prefix Length
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Create Edit Remove

2.3.1.3. Console

```
interface GigabitEthernet0/0
ip address 193.219.42.97 255.255.255.224
ip helper-address 193.219.42.174
```

2.3.2. NAT

Pro	Inside global	Inside local	Outside local	Outside global
icmp	193.219.42.145:69	192.168.0.2:69	193.219.42.67:69	193.219.42.67:69
icmp	193.219.42.145:70	192.168.0.2:70	193.219.42.67:70	193.219.42.67:70
icmp	193.219.42.145:71	192.168.0.2:71	193.219.42.67:71	193.219.42.67:71
icmp	193.219.42.145:72	192.168.0.2:72	193.219.42.67:72	193.219.42.67:72

2.4. Access Control List (ACL)

```
access-list 1 permit host 193.219.42.174
access-list 1 permit host 193.219.42.166
```

```
interface GigabitEthernet0/0
 ip address 193.219.42.97 255.255.255.224
 ip helper-address 193.219.42.174
 ip access-group 1 out
```

2.5. Security system

Registration Server

This service runs on top of the HTTP or HTTPS service.

Service

☒ On

☐ Off

	Username	Password
1	admin	admin

