MIDDLE EAST TECHNICAL UNIVERSITY
NORTHERN CYPRUS CAMPUS

Computer Engineering Program

CNG 435 Data Communications and Networking

Fall 2023-2024

IPV4 LAN Logical Design Implementation Assignment

Release Date: Friday 15-12-2023 8:40 A.M

Submission Date: Sunday 17-12-2023 11:59 P.M

Tasks

1.1 Logical Design [42 pts]

A small department has recently given an IP address:

(192+(Student_ID % 20)) . (Student_ID%200) . (Student_ID%200.0) . 0

The following work groups are needed:

Table 1.1: Department information

Department	No. of work groups	No.of hosts per work group
Administration	1	(8+(Student_ID % 7))
Classrooms	2	(9+(Student_ID % 6))
Labs	4	(9+(Student_ID % 6))
Student accommodation	2	(10(+Student_ID % 5))
Staff	1	(8+(Student_ID % 7))

Each work group will be attached to a router. Routers you have support four Ethernet/FastEthernet LANs and have two serial interfaces each. Use sub-netting to implement a network to meet the requirements given above (pay attention to the IP addresses of the serial interfaces).

1.2 Packet Tracer Implementation [58 pts]

Implement the subnet schema you designed above in Packet Tracer. Use the figure below as a guide to what your final design should look like.

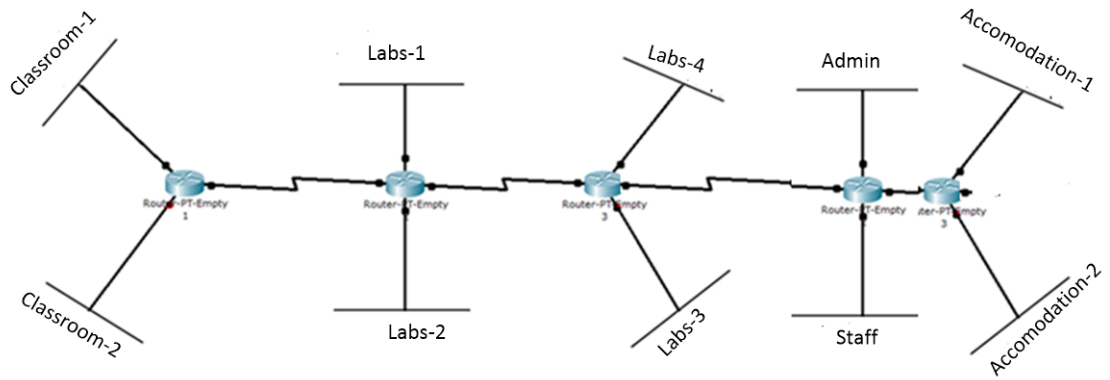

Figure 1: Packet Tracer Schema

Grading and Guidelines

Table 1.2: Assessment Criteria

Item	Marks
Logical design each work group	30 (theoretical)
Logical design for serial interfaces	12 (theoretical)
Subnetting Implementation	23 (packet tracer)
Configuration of Routing Protocol	15 (packet tracer)
All hosts can ping each other	20 (packet tracer)

- This assignment is an **individual** assignment.
- For task 1, you need to use your **own** student ID to perform the logical design.
- You need to provide a **.pdf** report specifying your Name, Surname, Student ID, and a step-by-step solution to task 1.
- You should be ready to show your work during demo sessions. Questions will be asked regarding design choice, implementation, and general knowledge of the subject.
- No marks will be given to the logical design without the demonstration on Packet Tracer.
- You need to submit two files in total; a single **.pdf** file for your report, and a single **.pkt** file for your implementation.
- You can only get full marks if your submissions are logically correct, fully works on packet tracer, and if you can provide a successful demo answering possible questions.
- Refer to the syllabus of CNG 435 for the measures taken in case of any academic dishonesty.