Recommend complete by 19 April

Packet Tracer: Goals and Guidelines

General:

- **Packet Tracer** is used to **design network setup**. Should address needs communicated.
- **Use any design approach you deem appropriate**. Must be able to **motivate** choice in documentation and in-person.
- Build robust, affordable network.
- **Each section** (office space, machine room) indicated on the diagram should **be isolated** (reception computer shouldn't be able to communicate with office computer etc.)
- **Each section must have an internet connection**. **Only one connection point** to the Internet, therefore it should be shared.
- **Printer in each section should be accessible over the network. Except where individual printers are indicated.**
- **Network in each section should be representative of perceived network** needs of the section.
- Network should **accommodate any growth** indicated.
- **Overall costs should be kept low**. Assume **all printers, computers, non-network devices and servers are already available**. You make assumptions regarding capabilities of servers, provided assumptions are rational and well-motivated.
- Packet Tracer file must provide proper simulation (work with Pocket Tracer)
- Determine appropriate:
    - **Subnets**
    - **IP addresses**
    - **Routing setups**
- **If needed, include additional hardware** for a virtual office environment.

Documentation:

Submit project report prior to demo. **Physical copy (or on a tablet**) should be brought with you for evaluation purposes.

Report should include:

- **Overview of problem (diagram**). Discuss possible issues that need to be addressed as well as work-from-home aspects.
- **Describe network topology group chosen**. **Discuss and motivate** selection of routers, switches, repeaters etc. DO NOT DISCUSS GENERIC DESIGN APPROACHES SUCH AS STAR TOPOLOGY – DESCRIBE YOUR NETWORK TOPOLOGY.
- **Provide and discuss setup costs required to build network.**
    - **Identify network hardware currently on market and will satisfy needs of network and identify the lowest price.**
    - **Considering robustness of network, significantly cheaper hardware is cheap for a reason.**

    - **Provide a full budget,**
        - **Labour costs**
        - **Contingencies (20% est.)**
        - **Current market trends (use correct people for correct job)**
        - **DO NOT INCLUDE DEVICES SUCH AS PRINTERS AND PC's, THEY ARE ALREADY AVAILABLE.**
- ❖ Discuss how users of network would connect remotely. Consider:
    - Which remote software to use and why (include choice in budget)
    - Security implications (e.g. vulnerability to lateral movement)
    - Bring-Your-Own-Device considerations.
    - Establishment of a cooperative virtual workspace
- ❖ Evaluate designed network:
    - Does it fulfil requirements?
    - What is good about this setup?
    - What is problematic about this setup?
    - Which part of the network is likely to need most maintenance? Can this part of the network be installed in a way that facilitates maintenance?
    - Which parts (if any) would remain if the company moves to a virtual office environment completely? And why?
- ❖ Describe how the group managed project load without face-to-face meetings.
    - Describe advantages, disadvantages and lessons learned from this exercise.

Group Work:

- Should be done **with regular face-to-face interaction but make good use of digital communication channels.** This is to keep-up to date with each other…
- Keep full record of the **group's communication as evidence**. Keep backups of all emails, messages, and any video conferences
- The group leader must be elected. **The leader is responsible for managing communication between group members and coordinating efforts**.
- Consult disciplinary guidelines if group member/ leader causes problems.