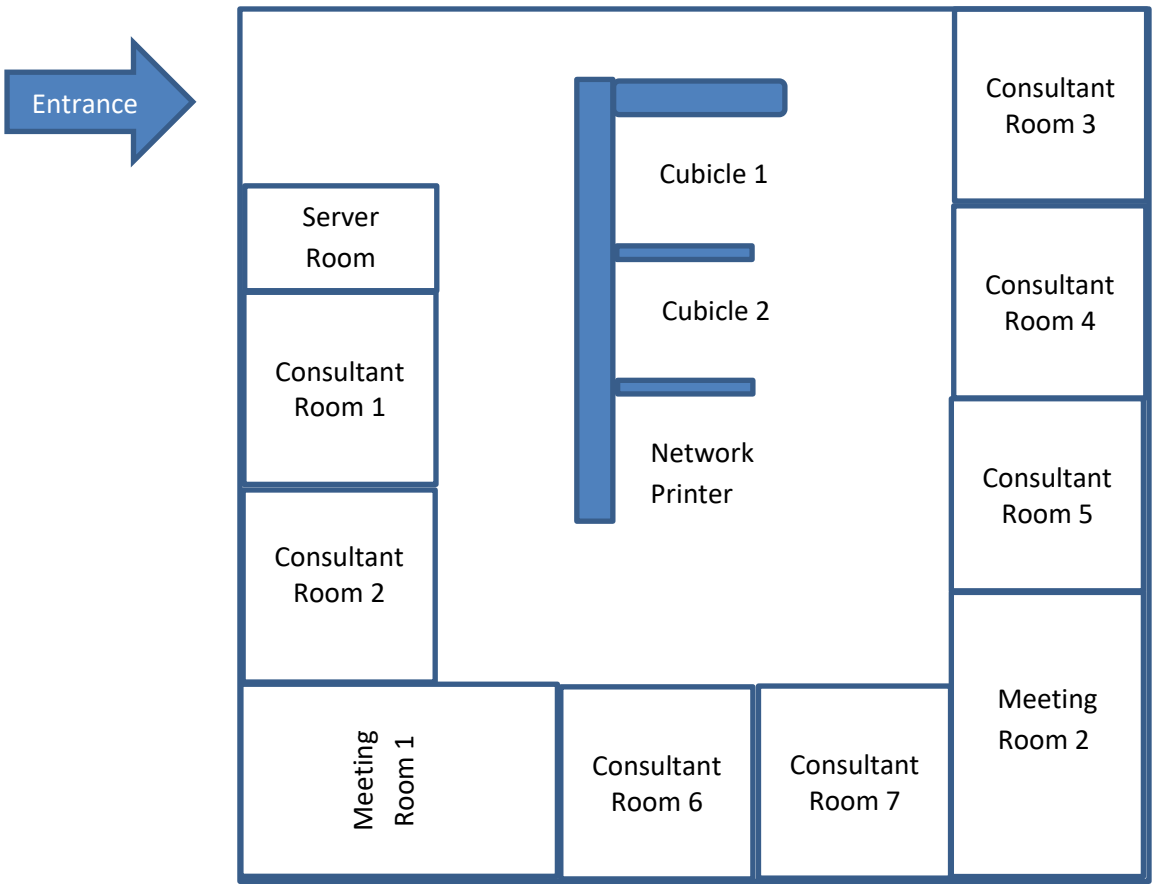
INFT2031 – Network & System Administration
The University of Newcastle
Semester 1, 2022
Assignment 1

Scenario: ATE-Consultants Pte Ltd

ATE-Consultants Pte Ltd is a small consultancy firm located in Warabrok, NSW. The new office for ATE -Consultants will be in the Warabrook Business Centre. ATE -Consultants has decided to use the leased the space to create the following areas:

- 2 meeting rooms with a Windows 10 workstation which is used for presentations and meetings
- 7 consultant rooms with wired connection to each room.
- 2 cubicles for administration staff. Each administration staff has a desktop Windows 10 machine in his/her cubicle. Also, this area has a shared network printer used by all staff
- 5 wireless access points for wireless access.
- 1 server room housing servers and other IT equipment

A schematic layout of the suggested areas are shown below:



Note that the consultants may opt to connect to the ATE-Consultants network wirelessly from anywhere in the premises. The manager has decided to provide a different IPv4 subnet for visitors' devices to connect to the network from the staff devices at ATE-Consultants. The visitors will connect to a different subnet from staff and also use a different ESSID to connect

to from staff (i.e. ESSID - *ATE-Staff* for staff and *ATE-Guest* for visitors' wireless access). It is expected that a maximum of 200 wireless nodes can connect to each ESSID.

ATE-Consultants has leased a block of public IPv4 addresses (i.e. 210.118.127.0/28) from Optus NBN which will be used to provide Internet access. ATE-Consultants already has a file server which it would like to move to the new premises' server room.

You are asked to provide a network design meeting ATE-Consultants requirements.

Task 1: Draw a network diagram with needed resources for ATE-Consultants network. Ensure that you use an appropriate legend in your diagram to specify the notation used. For instance, if you use switches in your design, you need to specify whether it is a Layer 2 or Layer 3 switch.

Task 2: Design an IPv4 addressing scheme for the network design.

Task 3: Research and select appropriate hardware for your proposed design and estimate a budget for the hardware resources. Reference where you obtained your hardware costs. You do not need to budget for cabling, installation and configuration costs.

Ensure that you explain how your network design meets all requirements of ATE-Consultants.

This is an individual assignment.

Submission:

You need to submit a softcopy (in PDF format) via Canvas.

Due date: May 6th 11:59pm.

Grade: 10%

The assessment rubric is given below:

	Excellent	Good	Satisfactory	Poor	Fail
	(10)	(7-9)	(4-6)	(1-3)	(0)
Network Diagram incl. proposed hardware (5) IPv4 Addressing Scheme (5)	The Network diagram and proposed hardware meets all requirements specified. IPv4 addressing scheme meets all requirements. The diagram is documentation is complete and correct. All design decisions are documented, and justified. No errors in the network diagram or design document.	The Network diagram and proposed hardware meets most requirements specified. IPv4 addressing scheme meets most requirements. The diagram is documentation is correct and partly justified. Minor errors in documentation and network design.	The network design, proposed hardware and documentation meets most of the criteria specified. Network design and documentation has errors. Certain lack of understanding in network hardware or IPv4 addressing scheme.	The network design and documentation meets some of the criteria specified. Network design and documentation has major errors. Lack of understanding in network hardware and/or IPv4 addressing scheme	No submission of work or misses the topic's points in its entirety