FIT9137 Assignment 2

Submission Guidelines

Assignment 2 is worth **25%** of the Unit Marks.

Deadline: Week-8 – Friday, 13th September 2024, 11:55 PM (Melbourne time)

- **Submission format and details:** You must submit **exactly two files** with the following formats:
  - **Presentation slides file:** `Firstname_LastName_StudentID.PPT (or .PPTX)`
  - **Video Presentation file:** `FirstName_LastName.FileType`
    (Video files used on the web .avi .f4v .flv .fmp4 .m4v .mov .mp4 .mpe .mpeg .mpg .ogv .qt .ts .webm)
  - **Note that during your assignment submission, you may see a warning for your video file stating something of the form "This file will not be submitted to Turnitin…". This is completely fine, and you can simply ignore this message. The video file will NOT be submitted to Turnitin; only the slides file is submitted.**
  - **If you do not submit a video presentation, the assignment will be marked as zero.**
  - **If you do not submit your presentation slides, a 50-mark penalty will be applied.**
- You must adhere to the Monash University's academic integrity rules. For example, if you use a resource, please clearly reference them. To avoid academic integrity issues please **avoid** copy and paste from any resources. In particular, do **NOT** copy and paste from:

  1) assignment instructions and/or

  2) from supporting and reference documentations.

  These will be picked up by Turnitin and would increase your similarity score. There is no universal similarity score threshold that would trigger an investigation. If you adhere to the academic integrity rules, there would typically be minimal similarity. You will have a chance to see the Turnitin report when you upload a submission (even in draft mode). We recommend you to check the Turnitin report **before** finalising your submission.

- Please note that the requirements for this Assignment are different from those that may be given as supporting documents in Moodle. Your knowledge and understanding should be for the assessment tasks requirements here. Any supporting documentation you refer to would only be a guidance and cannot be copied verbatim from those resources.

- The uploaded video file must be a clear student video recording of the presentation. The file can be any video format that can be opened on a standard Windows computer without

specialised software (such as mp4). The length of the recording should be a maximum of **15:00 minutes** only. Any video contents exceeding 15:00 minutes will be ignored and not marked.

- A PPT version of your presentation slides should also be submitted to Moodle. Please note that the written contents in the slides must be included as texts, and **not** screenshots of writings. Written contents included as images (instead of texts) will **not** be accepted and will be **discarded**. You will be marked based on both your presentation video and slides (including the recorded pages and your Appendix).

- Please note that you must follow the same instructions as in Assignment 1 regarding presenting a copy of your student ID in the beginning of the video and showing your face for the whole duration in the Video Presentation. **If your face does not clearly appear in the video presentation, the assignment will be deemed invalid and marked as zero.**

- The marks breakdown for Assignment-2 will be as follows:

    - **55%** for the quality of Network Design components based on the Assignment specifications, relevancy, related articles, technical design details and specifications used, and other design requirements and clarity in the design of all the other relevant network components,

    - **15%** for Section 2.3, and

    - **30%** for presentation and editorial quality including literature review with relevance to the topic selected, quality of PPT slides, visual presentation, explanations, level of understanding of their work demonstrated, and clarity of video and audio.

- ***Important Submission check for every student:*** *It is the students' responsibility to check if their submitted work is markable by our teaching team. It is strongly recommended that, after making a draft submission (before finalising it), every student immediately download their own draft files (e.g., recorded video/PDF/imn file, etc) and check if the draft files would be downloadable/readable/markable by a tutor. If the teaching team member is unable to mark your submission, 50% reduction of total marks may be applied.*
- *When you upload the assignment files on Moodle and perform the above check, please* ***make sure the submission is NOT left in the draft mode****. Before the expiry of the deadline make sure, the submission is made final.* ***If the submission is left in draft mode, it will be deemed as NOT submitted and will not be marked****.*
- You can create multiple video parts at different times and combine and submit a single video at the end. Make sure that the final video is clear and understandable.
- If your device does not have a camera, you can borrow a device from Monash Connect or Library. It's your responsibility to plan ahead for this. Monash Connect or Library not having available devices for loan at a particular point in time is **not** a valid excuse.
- The teaching team members may not be able to understand a language beyond English. All demonstrations must be in English. If your device does not support English, you may loan a device from Monash Connect or Library.

Penalties:

- Late submissions will result in a 5% deduction of the total marks per calendar day (up to 7 calendar days). For example, if you get 80/100 marks originally and submit 2 days late, then you would get a 10-mark deduction (5 marks per day) and your final marks would be 70/100.
- Submissions more than 7 calendar days after the due date will receive a mark of zero (0) and no assessment feedback will be provided.
- If the video recording exceeds the 15.00-minute limit, the parts beyond 15:00 minutes will NOT be marked and will be ignored.
- Speeding up the video recording (e.g., using software) is NOT allowed and such submissions will receive a ZERO mark.

Learning Outcomes covered:

- Analyse and formulate the functions and architectures of (wireless) local area networks, building backbone networks and the Internet.
- Examine networks using the underlying fundamental theories, models and protocols for data transmission.
- The Assignment-2 mainly covers materials from Weeks 4-6.

Late submissions and special considerations:

- All extension and special consideration requests are managed centrally. The teaching team cannot directly decide if you can/cannot have an extension or special consideration. Your request should be submitted directly to: https://www.monash.edu/students/admin/assessments/extensions-special-consideration
  Please make sure to select the correct assignment from the menu provided in the system, and **not** enter an assignment name **manually**.
- Without an approved special consideration request, late submission penalties will apply as described above.

Academic integrity: This is an **individual assignment**. Group work is not allowed. It is an academic integrity requirement that your submitted work be original. Significant penalties apply if there is any evidence of copying, collaboration, pasting from websites, contract cheating, or copying from textbooks. When you are allowed to use external resources to answer a question, this does not mean copying and pasting text from websites or any other resources. Write answers in your own words such that your understanding of the answer is evident.

Marks: The assignment will be marked out of 100. This assignment is worth 25% of your unit total marks.

Feedback: Your Tutor will provide you with marks and feedback on Moodle.

Presentation: The presentation should look professional, which means you need to pay attention to spelling, punctuation, grammar, and visualisation. It is important that your presentation has a clear structure. Prepare presentation slides of at least 10 pages/slides* long and a maximum of **15 pages/slides**. The presentation should ideally not contain too much text and should use a minimum font size of 12pt (preferably larger). You may include tables, figures, pictures, graphical designs etc. The page/slide limit does not include title page, references, and Appendix. Any page/slide beyond the page/slide limit of 15 will not be marked. Use FIT standard presentation format.

Note: You can find great tips on how to prepare a presentation on Monash's web pages. Here are some links to get started:

Language and Learning and Online website:

- https://www.monash.edu/rlo and
- https://www.monash.edu/rlo/assignment-samples/engineering/oral-presentation.
- ***Software tools for drawing sitemaps***, any drawing tool should work, for example LucidChart, or even presentation tools such as PowerPoint, Keynote or Google Slides. Scans of hand-drawn maps are acceptable if they are neat and easily readable.
- In order to record yourself, we recommend you use **Zoom**.

  Monash University – Zoom (https://monash.zoom.us). However, you are free to use any other software as long as the final file submitted to Moodle is understandable and accessible by our teaching team.

Reporting: An Enterprise Network Design Report

A Request For Proposal (RFP) to Design Wired LANs, Wireless LANs and support Backbone Network

1. Assignment Description

Objective

A public transport company requires its office buildings to be connected over a wired LAN and Wireless LAN (WLAN). You have been asked to respond to the following excerpt from their RFP (**R**equest **F**or **P**roposals) in the newspaper.

Scope of The Work

At present, the total number of office employees in Melbourne is 230. Each office worker is provided with an office space or cubicle with a multimedia desktop PC having a wired network connection. Owing to a business acquisition, the number of employees in Melbourne is expected to increase substantially. The size of the Melbourne office, both Wired and Wireless LAN will increase (from current 230 employees) to 500 employees; after **two** new **3-storey** buildings called **East side building** & **West side building** (located across the road) have been acquired to accommodate the additional office space needed to provide *equitable* seating arrangements for the increased number of employees in the new buildings (see Figure 1).

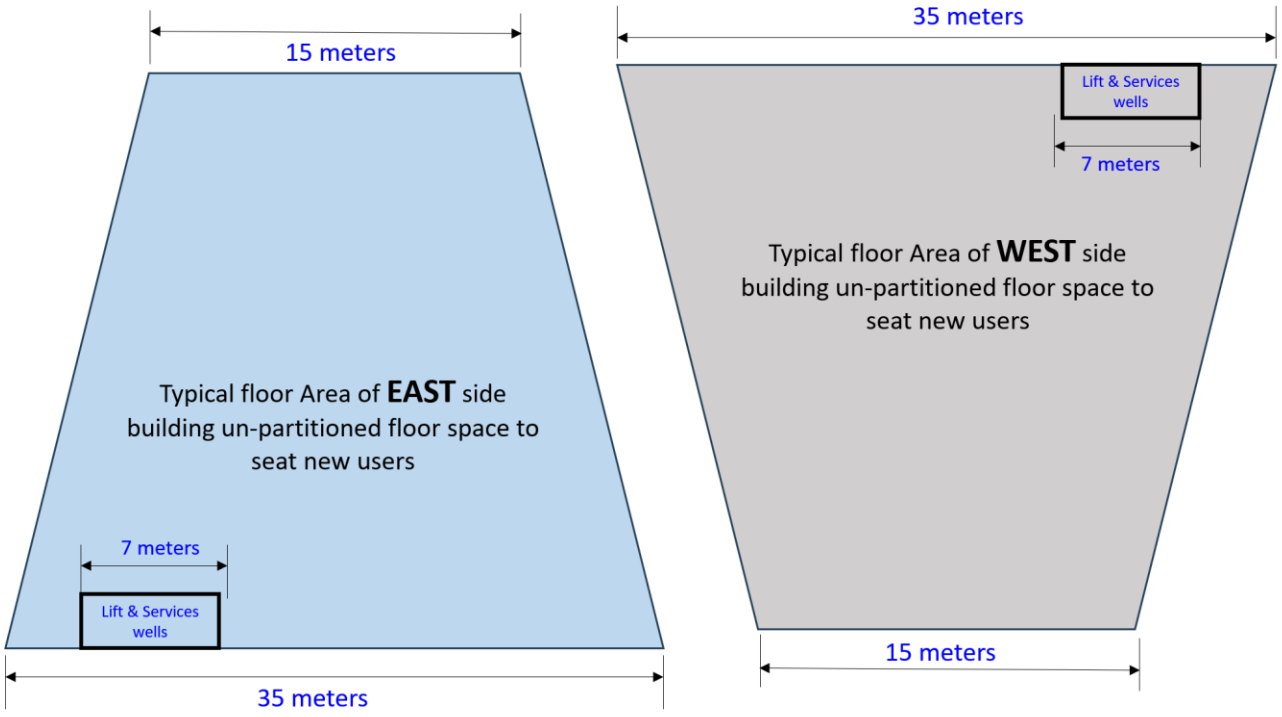

Figure 1:A Typical floor plan for structured cabling for LAN and WLAN

For the two new buildings you can assume the three floors as Ground floor, First floor & Second

Floor. The new buildings require structured network wiring for network connections, where each floor has a wiring closet with necessary structured cabling. Each wiring closet requires four fiber optic cables running to a dedicated server room on the ground floor. The new buildings also need a backbone network to be connected to the existing Main office network (across the road). Please note that the ground floor of the buildings (west and east) are not the same, they have different ground floor, i.e. Each new building has its own ground floor.

It is envisaged that the new buildings in Melbourne office would support, both, **wired** and **wireless** networked office environment where each of the staff PC and their personal laptops would be equipped with office desktop high resolution video conferencing software (VoIP), along with the usual business applications such as web, email, and regular office productivity packages. The average network traffic generated by each active wired network user is estimated to be around 25-30 Mbps, while the WLAN traffic generated for each floor would be 20% of the wired traffic.

The expected active user's activity pattern for the new buildings may be seen in Figure 2, where the new buildings will accommodate the new staff members equally distributed to each floor of the new buildings. The Wired LAN infrastructure needs to be designed to support the anticipated peak time data traffic, and in addition, support the Wireless LAN. The design should show the WLAN Access Points (AP) connectivity to the wired infrastructure. At the existing main office network (across the backbone network), a capacity increase will be required for key devices and their support infrastructure (e.g., Servers, Routers and/or switches) to accommodate the increased traffic volume from the new buildings. Employees are expected to access the main office network and its resources frequently. So, from the business perspective, it is important that the backbone network connectivity is maintained all the time. Loss of productivity is not an option from the network connectivity point of view.

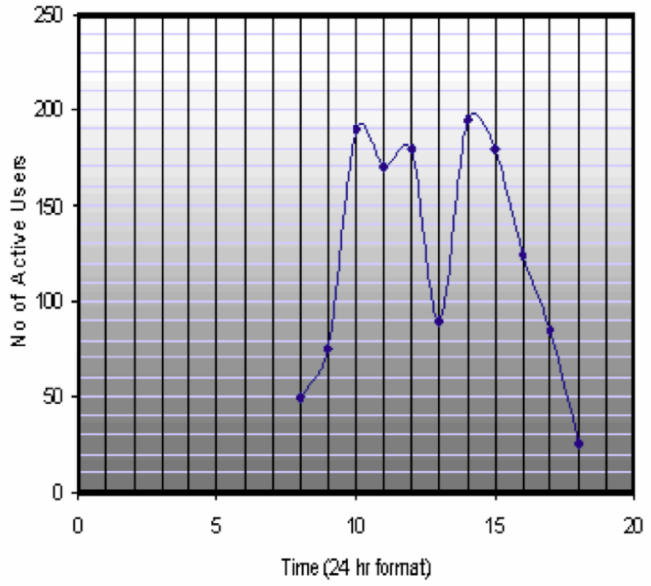

Figure 2: The number of expected active users during the business hours.

Figure 2 also shows the expected number of active users for the two new buildings during the

business hours. This number of expected active users is useful for **minimum** network connections requirements and to estimate the **minimum** throughput network design requirements.

2. Assignment Requirements

Submissions for this assignment should be a recorded video presentation and its complete set of slides with explanatory figures and other requirements for a professional presentation. The assignment specifications are in the form of a request for proposal (RFP) to potential suppliers. An RFP is a solicitation often made through a bidding process by any company interested in the design and procurement of installation contract services. This assignment provides an opportunity for you to work individually and apply Data Communications and Computer Networking concepts to a practical network design. You are required to design the network; make networking recommendations based on the RFP requirements and present your solutions in a formal presentation.

2.1 The video presentation should contain the following important diagrams to support your proposal:

(a) A conceptual high-level diagram showing a typical floor plan, backbone network (connecting the floors) and a backbone network to connect to the main office.

(b) A typical floor plan (one floor of both the East & West building would be sufficient).

(c) Students need to specify the types of Switches, Routers, Access Points, Cables, and show the Servers, Routers, Switches and Access Point (AP) locations in the design. No addressing and/or routing is required.

(d) Traffic throughput calculations for each floor, each building and backbone network.

(e) Backbone connection diagrams (using schematic diagrams of cross-section of a building showing switches, routers etc.).

(f) Backbone network connectivity for the new buildings connecting with the head office building.

2.2 Students should include details of the following information in response to the request for Proposal (RFP) in the presentation slides and any additional technical information can be included in the Appendix. We ask you to submit your final presentation slides along with your appendix.

(a) Project Requirements: Project requirements can be derived from the Objectives and Scope of Work section of the RFP. A requirement brief is usually an itemised list of the client's requirements derived from the RFP.
Important: Please make sure to **NOT** exactly copy-paste information from the assignment specifications. You should use your own sentences.

(b) Wired, Wireless LAN and backbone network Design: Wired, Wireless LAN design (for a typical floor) and backbone network design, must include the following information:

(i) Computer desktop layout plan with network topology for a typical floor level.

(ii) Switch and Wireless Access Point locations on a typical floor, vertical cable paths and lengths between the floors. Switch and Access Point functional specifications. Assume the floor to ceiling height as 3 metres approximately including the false ceiling.

(iii) Router (and/or Switches) locations (both the existing and the new ones) and their interconnections providing backbone network connectivity.

(c) Design Rules (or Assumptions): You need to outline design rules for LANs, WLANs, and Backbone Network. Your description should include:

(i) Detailed steps required in the network design process,

(ii) Methods used to form estimates of network performance for each type of devices,

(iii) An example of a basic sample design showing proposed floor plan, assumptions, justifications, and calculations.

(iv) Assumptions of backbone connectivity using wired/wireless media needs to be reported.

(d) Recommendations and Justification: A summary of your recommendations with a statement of justification.

[e] Remark for backbone connectivity building to building: Backbone network, please refer to Assignment-2-Support Doc slides 22-25 (available on Moodle).

2.3 Ethical Network Usage policy and unethical behaviour:

In your presentation, address some examples of unethical activities that users could potentially engage in. Additionally, how would you propose to address these issues through the development of an Ethical Network Usage policy with a list of guidelines regarding appropriate network conduct, prohibited activities, and behaviours deemed unethical? Discuss ***three*** identified unethical activities and ***three*** policy directives as part of your presentation. Note that your answer must relate to your particular network design rather than being completely generic, applicable to any network.

Proposed structure of presentation slides:

- Title page
- A Brief Summary of Problem Definition
- Important Information and Diagram(s) listed in Sections 2.1 and 2.3.
- Conclusions and Recommendations
- References (You would usually stop here in your recorded video)
- Appendix (This may contain additional information listed in Section 2.2)

Sources and referencing

Any claims or recommendations that you make should be substantiated with supporting references.

That means that you cannot just claim that A is better than B, you have to argue why that is the case and point to external sources that can serve as evidence. You can use the unit's recommended textbooks and other standard literature as sources, but you will also need to use additional documentation to find technical information and commercial details for this report. Whenever you use material from an external source, make sure that you reference that source. You also need to assess the quality and reliability of any source. An independent expert review of different technologies is much more trustworthy. References should be listed correctly (see conference papers or journal for the reference). You may lose marks for poor referencing. You should use the APA referencing style, which is explained in detail here:
[https://guides.lib.monash.edu/citing-referencing/apa7th]

Frequently Asked Questions (FAQs)

Please visit the discussion forum on Ed. Ed forum has a mega chain to discuss any queries and any frequently asked questions already posted. Please visit and consult the Ed forum and search for any related query you may have with regards to the Assignment-2 questions.