

# CMPG315 Group Project Task Outlines

## Overview

The scenario for this project is as follows:

*You and the members of your group have been hired by a company that wants to expand their business. After careful consideration of the factors, and after consulting with potential clients, the company has decided to move to a newly built office building. The new office does not have any suitable network infrastructure apart from a business ISP fibre connection and ONT, and the company has given you the task of setting up the new office network in the new building. The company has already purchased a large number of computers and office equipment, and their finances do not currently allow for extravagant expenses. You have to design the network in such a way that the costs are kept to a minimum, and satisfies all of the requirements that the company has put in place. In particular, they want the network to be capable of supporting all of the computer equipment they purchased as part of the expansion, as well as the equipment that they are moving from the old office building.*

*In addition to setting up the network, the company has instructed your group to develop a small, simple, text messaging app that can be used for non-confidential communication inside the organisation. The company has decided that it will mainly use computers that run Windows, and as such the task is to develop a text-messaging app that has to run on Windows. The company has indicated that it has to work over the Internet and that they want the app to be fully portable, so that it can easily be used by employees working from home and abroad.*

**NB: The dates given here, with the exception of the final submission date when the demos start, are merely guidelines that you can use to plan your work during the semester – there will only be one submission and one submission date.**

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## Group Task 1: Preparation (suggested completion date: prior to 29 March)

Each member of the group should aim to complete the following in their own time before the **29<sup>th</sup> of March**:

1. Complete the following (or similar) free online courses:
  - a. <https://www.udemy.com/course/manageyourtime/>
  - b. <https://www.udemy.com/course/git-started-with-github/>
  - c. <https://www.udemy.com/course/git-expert-4-hours/>
  - d. <https://www.udemy.com/course/project-and-project-management/>
  - e. <https://skillsforall.com/topics/cisco-packet-tracer>
2. Write a short reflection of not more than 250 words in which you discuss the soft skills that you have learned from the courses. The reflection of all the members of the group has to be included in the final documentation that will be handed in on, or prior to, the day of the project demonstration. You may consult sources such as <https://students.unimelb.edu.au/academic-skills/resources/reading,-writing-and-referencing/reflective-writing/reflective-writing> and <https://www.ed.ac.uk/reflection/reflectors-toolkit/producing-reflections/academic-reflections/general-tips> for guidance on reflective writing.
3. Meet in person as a whole group and get to know one another. You should also use this meeting to work through the project documentation in detail, discuss the work division, assign roles such as group

coordinator/leader, and to determine the group's internal work ethic. This ethic should cover topics such as when and where work is done, in which manner, and what the group will consider as delinquency. In other words, you as group will determine how to identify when someone isn't contributing as they should. Write up the group's work ethic; it will also be included in the final documentation.

4. Set up a timeline for the overall project. Include time contingencies of 20% in case something goes wrong, or tasks take longer to complete than expected.
5. Submit the draft versions of the reflections (one for each group member), timeframe, and the summary of work ethic (one per group) using the assignment that will be open on the 8<sup>th</sup> of April on eFundi. **The group coordinator/leader is the only one that submits assignments.**

## Group Task 2: Continuous Reporting (duration: entire project timeline)

For the entire duration of the project, the group must:

1. Keep notes and attendance for every meeting and work session.
2. Keep record of each member's assigned tasks and responsibilities. Each task should have a milestone date that is realistic and achievable. If the group wants to penalize people for not keeping to their timelines and milestones (see Notes, considerations and Penalties below), this should be discussed and clarified in the group's internal work ethic (see Task 1).
3. The group coordinator/leader is responsible for keeping track of when tasks are completed. A completed task sheet should be included in the final documentation.
4. You are strongly encouraged to make use of GitHub to manage your project. You will need it for future work, so if you are not yet proficient this is a good time to practice.

## Group task 3: Topological Network Design (suggested completion date: 19 April)

The group should aim to complete the design of the network using Packet Tracer, as explained in the attached Packet Tracer project description, by the 19<sup>th</sup> of April.

## Group Task 4: Text Messaging App Development (completion: 16 May; start of demos)

The group must design and build a small text messaging app, that connects via the Internet, that has **all** of the following features:

1. Runs on Windows computers (may run on iOS and Android as well, but **must** run on Windows). You should assume that it could be either a Windows 10 or 11 machine;
2. Has a useable and user friendly GUI;
3. Can send and receive text messages;
4. Can send both individual and group messages;
5. Is **fully portable**, i.e. nothing has to be installed in order for the app to function on a Windows machine; and
6. Connects via the Internet, and not over a LAN. For your demonstration, a LAN will probably not be available, so your application must be able to function via the Internet.

## What you will need to submit on eFundi

You need to submit all of the following items on eFundi as part of the project:

- Your packet tracer files, as well as the video(s) made for the presentation;
- The application files for your messaging app. Remember that it has to be portable and work over the Internet!
- Your documentation, as explained in the relevant documents. The documentation includes, among others:
  - Your group members' reflections on the online courses;
  - The work ethic your group decided on;
  - A description of the network you designed in Packet Tracer;
  - A budget for the network;
  - A discussion on the issues you encountered, such as group conflicts, scheduling problems, technical challenges, etc.;
  - Project management documentation; and
  - A reflection on your group's experiences with the project. Refer back to Group Task 1 for guidance.
- Your presentation files; and
- Anything else specified in either the project guidelines, or on the assignment submission page on eFundi.

## Notes, considerations, and penalties

Please take note of the following:

- There are no restrictions on how you may develop the app. You may use any tools, IDE's, programming languages, etc. that you want. The list in Group Task 3 above contains all of the requirements for the app. However, do keep in mind that you may not install anything on the demo computer. This includes external libraries such as runtimes, IDE's, and language packs – it must be **fully portable** on Windows devices.
- The topological network design must be done in Packet Tracer.
- **Try not to unnecessarily overcomplicate your tasks.**
- Multiple group tasks can run concurrently. Only the completion date is set, not the starting date.
- You will have to submit all of your project files on eFundi along with your final documentation prior to the demonstration. The demonstrations will take place over a few days, but the submission date is the same for all of the groups.
- You must submit fully by the project due date to avoid penalties.
- You will be allowed to submit late, but for every full "project" day that you are late the group will suffer a -10% penalty to the final mark. A partial submission will not be considered a submission. Examples:
  - Your project receives a final mark of 90%, but your final submission is 3 "project" days late. The penalty is -30%, i.e. your final project mark will be  $(90 - 30) = 60\%$ .
  - Your project receives a final mark of 67%, but your final submission is 7 "project" days late. The penalty is -70%, i.e. your final project mark should be  $(67 - 70) = -3\%$ . **However, as you did submit work and a negative mark will not be given, you will still receive 10% as your project mark.** This also means that 10% is the lowest mark your group will receive if your group submits late.
- A full "project" day, in the context of this project, is considered any 24-hour period where any number of those 24 hours falls on a weekday (Monday – Friday). This means that, if submissions close on a Sunday at 15:00, you will receive your first penalty if you do not submit by Monday at 15:00.
- You must submit prior to your demo; you may not demo until you have submitted.
- The demonstrations will take place from the 16<sup>th</sup> of May. The exact dates will be communicated closer to the time.
- At the end of the project, after your demo, you as a group will be offered the opportunity to adjust the mark of individual group members. This is specifically aimed at members that did not contribute as they should

have, but still contributed enough that the group feels that the member still deserves to receive a mark. The adjustments will be in the form of percentages of the final mark. Examples:

- Member 1 should receive 70% of the final mark per the group's decision, and the group received a mark of 90%. This means that Member 1 receives  $0.7(90) = 63\%$  as final mark.
- Member 6 should receive 50% of the final mark per the group's decision, and the group received a mark of 90%. However, the group submitted 3 "project" days late and thus received a final mark of 60%. Member 6's mark is determined using the final project mark after all penalties. This means that Member 6 receives  $0.5(60) = 30\%$  as final mark.

**NB: Don't leave group problems to fester until it is too late. If someone isn't doing their part, or if you notice that only a few members of the group are contributing, take action early.**