



Middle East Technical University



Department of Computer Engineering

## CENG 435

Data Communications and Networking

Fall 2025–2026

Assignment 3

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Due date: 2026-01-02 23:59

## 1 Introduction

For this assignment, you will follow the [Wireless Tutorial](#) for the INET framework. Pair off into groups of two to complete this assignment. Like the previous homework, you have two options for your submission: You can either **(1)** prepare a report that answers and discusses each question in detail with supporting figures or **(2)** prepare a video, quickly going over each resulting network while describing them. With the video submission you have the option of showing off the animations.

## 2 Tasks

Follow the descriptions in each task. With the resulting network; either **(1)** describe this network by attaching figures and relevant source files or **(2)** show this network and briefly explain it in your video. Discuss the question for each task in detail in your submission. You can make necessary changes to the network or assumptions in your reasoning as you see fit.

### 2.1 Task 1

First, follow the tutorials at [Step 1](#) and [Step 2](#). Then, we will work on the network given in [Step 3](#). For Step 3, set `sim-time-limit` to 10 seconds. Run the simulation multiple times, moving the host `hostR1` closer to `hostA` (Figure 1). Observe which measurements change as the topology changes and how. Briefly discuss how we would observe these changes in real life setting, keeping the communication medium (`UnitDiskRadioMedium`) in mind.

### 2.2 Task 2

Follow the tutorials at [Step 4](#) and [Step 5](#). Calculate the channel capacity with respect to `hostB` over the course of a five second simulation. Hint: Check the lecture slides.

### 2.3 Task3

Follow the tutorials at [Step 6](#) and [Step 7](#). Use one of the other MAC protocols and compare the relevant metrics against CSMA with ACKs.

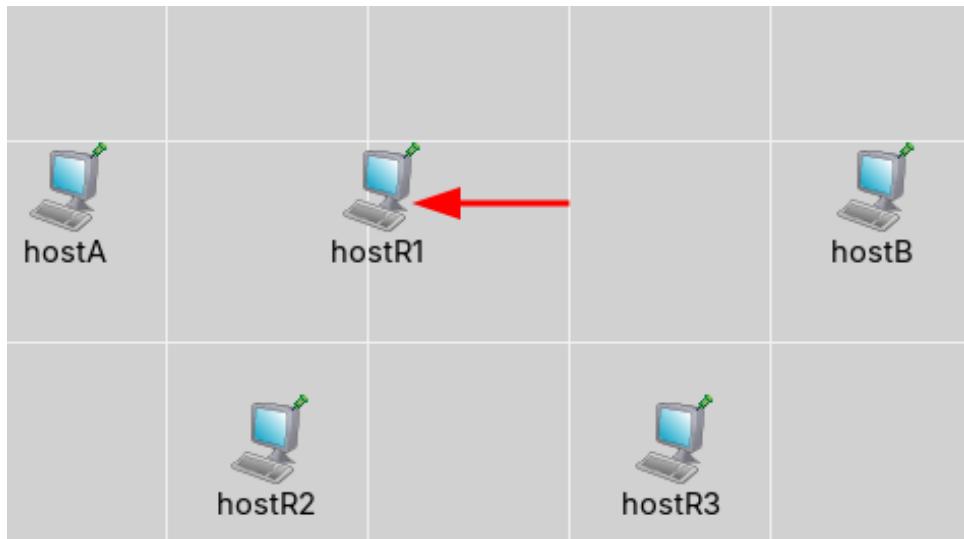


Figure 1: Task 1 host placement

### 3 Specifications

- Feel free to ask questions through ODTUClass [Student Forum](#). I'm also available on [yigit@ceng.metu.edu.tr](mailto:yigit@ceng.metu.edu.tr).
- See the course syllabus for the late submission policy.
- If you choose to submit a video, upload it to YouTube unlisted and submit the link to the assignment submission. Mention the students for the assignment both verbally and in the video description. You can delete the video after the assignment grades are announced.
- If you choose to submit a report, upload it to the ODTUClass *Report Submission*. One submission per group is sufficient.

#### 3.1 Grading

- Each task is 30 points.
- The structure, quality and neatness of your report or the presentation of your video is worth 10 points.