

**Title:** THz lab course

## General description

Hypothesis: The development of the THz technology came to the level, when THz sources and detectors are affordable and accessible. Say, the cost of a THz source and detector came down to ~100 EUR. However, it is still an early stage of the THz-technology development, the technology is not yet widespread in the society.

THz sources are either with a fixed frequency in the range 100 GHz – 1 THz, or they could be slightly tunable by 1-5%. The THz detectors are either broadband, or they could have a high responsivity only in a narrow band.

In this situation, it becomes possible to offer THz lab exercises to BS and MS students. Suggest a set of such lab exercises/experiments for students. Those could be exercises targeting some possible practical THz use cases and applications, experiments clarifying particular properties of THz radiation or electromagnetic waves, or that could be experiments just for fun.

Ideally, some of the exercises/experiments should elucidate certain unique properties of THz radiation.

## Students task description

Design a THz lab course:

- 1) with ~5 units (exercises/experiments),
- 2) each unit can take up to 2 hours to complete,
- 3) no overly complicated or expensive equipment could be used in experiments,
- 4) lab course should have an educative/inspiring character.

Prepare a presentation outlining the exercises/experiments of the lab course.

## Recommended background

ITSS-TSaT 2024

## Site URL

Google, ChatGPT, perplexity.ai

## References:

ITSS-TSaT 2024 lectures + any other sources you can find