# ELG 3175: Introduction to Communication Systems

## Laboratory Guidelines

**General Instructions:**

During the very first lab session, mandatory for all, students will divide themselves evenly into groups, each consisting of 3 students. The TA will present a brief tutorial on the lab procedures of this course. The schedule of the lab time slots for each group is given at the end of this document. All group members must attend their respective sessions according to the schedule. **Failure to do so will result in an incomplete grade for the course**.

A **formal lab report will be required from every group**. The laboratory portion of the course mark will be derived from the laboratory reports you submit, the answers to the laboratory preparation questions and your participation in the experiments.

**Every group is required to have a hard cover laboratory notebook** (which should be available in the book store at the Unicenter) in which the experimental observations are entered as well as preliminary analysis of experiment results. Experimental results must *never* be recorded anywhere else! The book should be one with graph paper in it so that plots can be made. Any preparation required for a laboratory must also be done in the lab notebook. This work will be quickly checked by the teaching assistant near the start of the lab period and a grade assigned. The same lab book may be used for all three electrical engineering courses you are probably taking this term as you will not be required to hand the book in with any reports, but it must be available for inspection upon request. The TA will sign your lab book at the end of the lab period to certify the results are recorded in the lab, and will give you a mark for lab participation and performance at the same time.

As the laboratories are largely demonstrations of different communication processes, reports should include an analysis of the expected results, a comparison with the observed results, and a discussion of any differences. A properly worked out set of solutions to the lab preparation questions should also be part of any formal lab report that is submitted --- a photocopy of the solution in your lab book is not acceptable. Laboratory reports deadline is one week after the experiment was scheduled. Reports should be submitted on regular paper well fastened together (preferably bound in some manner). The first page of each submitted report must indicate

i. the course and experiment number,
ii. the lab group number,
iii. the group members at the time the lab was done,
iv. the date and the time the lab was done, and
v. the name of the TA who supervised the lab.

They should be submitted to the TA who supervised the lab session. Late reports will not be accepted.

All students must attend their scheduled laboratory sessions. Failure to attend a session (or to submit reasonable lab reports) will result in an "incomplete" mark being issued for the course. If you are ill, you will have to obtain the appropriate documentation from the university's health services verifying you were not able to attend the lab for valid reasons, and you will have

to make up the lab at some other time (the time is to be negotiated with the Teaching Assistants). Labs begin promptly at scheduled times and all group members must be present from the start; the labs are usually not available after the scheduled period. It is unacceptable for anyone to be late for the lab period; all are expected to fully participate in every lab. Lateness will be penalized in the lab mark of the individual. Anyone missing for any significant portion of the lab will have to repeat the lab on their own at a later date.

**Lab Procedure:**

As indicated above, here is how a lab session will be conducted:

1. Near the start of each lab period, the TA will visit each lab station and briefly borrow your lab books in turn, grade your lab prep responses, and indicate a grade for the preparation in your lab book. Anyone without a hard cover lab book will be asked to leave the lab, and will have to contact the TA later to arrange a time to do the lab on their own (a mark of zero will be recorded for the lab participation mark in this case).

2. All measurements made in the lab *must* be recorded in the hard cover book. No pages should ever be added or removed from the lab books. (Lab books are designed to ensure nothing can be added or removed that wouldn't be evident as tempering.) Simply cross out material you wish to disregard, but do not obliterate it. (This is standard lab practice!) Lab book entries should also be dated.

3. At the end of the lab, the TA will sign and date your lab book and the end of your records for the lab to indicate that the results were obtained in the lab. After the reports have been submitted, you may be asked to produce your lab book to allow verification that the data given in your report is based on your measurements. At the end of the lab period, the TA will also give you a grade for your lab 'performance' to reflect your involvement in the group while conducting the lab and the efficiency with which you conducted the lab. The grade should be recorded in your lab book. Failing to complete the lab in the allotted time due to being unprepared, arriving late, disregard for lab safely, etc. will all reduce your lab participation grade.

**Use of Laboratory Equipment:**

The most common source of problems encountered in the labs is equipment failure due to student abuse. To minimize the possibility of this occurring, only one student in a group should make the connections in a set-up with the other group members independently checking that the connections are correct BEFORE TURNING ON THE POWER. Pay particular attention to the polarity of power supply connections. Ensure as well that you do not apply a larger signal input than a piece of equipment can handle (in making initial adjustments, always start from a small signal level). Finally, note that **ABSOLUTELY no eating, drinking, or smoking is permitted in the laboratory.**

## Experiments

There are 4 experiments, each taking 1 session (3 hours) except for the experiment # 1, which will take 2 sessions (denoted 1a and 1b on the schedule). Each group has to finish all experiments and to submit the reports for each of them in order to satisfy the laboratory requirement of ELG 3175. Failure to do so will result in an incomplete grade for the course.

Detailed description of the experiments is given in separate documents.

**ELG 3175 Laboratory Schedule Winter 2025**

| Experiment | Date | Wed. 1:00 - 3:50pm |
|---|---|---|
| 1a | Jan-22 | All Groups |
| 1a | Jan-29 | Groups 7-12 |
| 1b | Feb-05 | Groups 1-6 |
| 1b | Feb-12 | Groups 7-12 |
| | **Feb-19** | **Reading week** |
| 2 | Feb-26 | Groups 1-6 |
| 2 | Mar-05 | Groups 7-12 |
| 3 | Mar-12 | Groups 1-6 |
| 3 | Mar-19 | Groups 7-12 |
| 4 | Mar-26 | Groups 1-6 |
| 4 | Apr-02 | Groups 7-12 |
| | | |

Note: Group numbers are given in the schedule together with the experiment number for each time slot.