

# Regulations for Laboratory in the Theory of Logic Circuits

1. To be allowed to take part in the laboratory students have to satisfy all conditions of the studies regulations.
2. Attendance to the laboratory is mandatory. When absent due to illness (or any other reason), student should catch up with the exercise during the same series of exercises (**the exact term have to be scheduled with exercise supervisor within first 2 weeks after absence**).
3. To be admitted to an exercise students have to prove their satisfying knowledge in the field (see **prerequisite reading given in the table**) as well as present solutions for all tasks that accompany the instructions for each exercise. Each instruction material contains the section "Instruction to follow" at the end. Fulfilling the specified conditions constitutes an obligatory part to be admitted to the exercise as well as finishing it with acceptance. Instruction material files are available for download on the web site <http://zmitac.aei.polsl.pl>, link for TLC. **Each student should have their own set of solutions for all tasks. These solutions should be hand-written and cannot be xeroxed.**
4. After each stage of an exercise the results should be presented to a supervisor for checking and confirmation of a task realization.
5. For each exercise there should be prepared a report. The report can be written individually, by a subsection or the whole section, but in each case it should contain all tasks performed by those students whose names are listed on the front page and all elements specified by the exercise supervisor. The report should be prepared using some text editor and, unless specified otherwise by the exercise supervisor, as **Adobe PDF document** (not compressed) sent via **electronic submission system** available in the database. Templates for front page of reports are available on the web site.
6. For students to be permitted to take part in an exercise there is a condition of delivering a report from the previous exercise (which means that **the report must be sent before the next exercise**). If the report is missing for any reason, students receive D (2.0) grade for the exercise and have no more than one week to send the report. If they fail to do that, they are not allowed to participate in laboratories.
7. If in a report there are some errors or elements missing, it can be rejected. In such situation the report should be handed in to the exercise supervisor as a **hard-copy version within 1 week**. The exercise supervisor indicates all problems that require corrections and the report should be changed accordingly, then sent electronically once again within **two weeks time**.
8. Being refused admittance to the laboratory is the same as absence.
9. To get a credit for the laboratory it is necessary to:
  - perform all exercises the laboratory consists of,
  - deliver and ensure acceptance of all reports,
  - receive a positive grade for each exercise.
10. Students can get a grade for an exercise while performing it or by writing a test after a series of exercises.
11. While in the laboratory room, students are required to keep all equipment in order. Any damages done are paid by students.
12. If any of the above points is not fulfilled, student has the right to explain the reason **only in a written form**. The final decision is made by the general supervisor of laboratory after considering students explanation as well as the overall student's attitude to the subject.
13. In cases where the above rules do not apply the decision is made by the general supervisor of the laboratory.

## **Safety regulations**

1. The students present in the laboratory room are only those performing some exercises or whom a supervisor has admitted to.
2. Entering the laboratory and starting exercises without the permission and supervision is forbidden.
3. The only person who switches on and off the power is a supervisor.
4. Removing and exchanging any elements of the equipment in the laboratory is allowed only under supervision.
5. Eating, drinking and smoking in the laboratory room is strictly forbidden.
6. After finishing an exercise the place of work should be left clean, with disconnected elements and wiring.
7. Any occurring problems with equipment and accidents should be reported to a supervisor immediately.

## Theory of Logic Circuits – Laboratory

| Ex. number | Subject  | Prerequisite reading  |
|------------|--|---|
| 1          | Combinational switching circuits   | [1]: Chapter 6, Section 8.5.1, Section 8.5.2, Section 9.1 Section 10.3              |
|            |  | [2]: Section 15.1, Chapter 18 Chapter 22  |
| 3          | Basic sequential switching circuits  | [2]: Section 17.3, Chapter 18 Chapter 20  |
| 4          | Asynchronous sequential switching circuits                                 | [1]: Section 9.2, Section 10.3  |
|            |  | [2]: Section 15.2, Chapter 18 Section 20.1, Section 20.3 Section 26.1, Section 26.3 |
| 5          | Synchronous sequential switching circuits                                  | [1]: Section 9.2, Section 10.3  |
|            |  | [2]: Section 15.2, Chapter 18 Section 20.2 - 3, Chapter 27                          |
| 6          | Selected arithmetic switching circuits                                     | [1]: Chapter 3, Section 5.1 - 2   |
|            |  | [2]: Chapter 18, Chapter 20 Chapter 30  |
| 7          | Dynamics of switching circuits   | [1]: Section 8.2  |
|            |  | [2]: Chapter 18, Chapter 24, Section 26.4   |
| 9          | Registers  | [2]: Chapter 18, Chapter 20, Chapter 28   |
| 10         | Counters   | [1]: Chapter 6, Section 10.3  |
|            |  | [2]: Chapter 18, Section 20.2 - 3, Chapter 28                                       |
| 11         | Implementation of switching circuits using multiplexers and demultiplexers | [1]: Section 8.5.2, Proposition 8.12  |
|            |  | [2]: Section 17.2, Chapter 18, Chapter 19   |
| 12         | Computer assisted design of switching circuits                             | [2]: Chapter 19, Section 25.4, Section 26.2   |
| 14         | Microprogrammable switching circuits                                       | [2]: Section 17.4, Section 21.1, Chapter 31   |

### References

- [1] U. Stańczyk, K. Cyran and B. Pochopień: *Theory of Logic Circuits Volume 1 - Fundamental issues*, Publishers of the Silesian University of Technology, Gliwice 2007.
- [2] U. Stańczyk, K. Cyran and B. Pochopień: *Theory of Logic Circuits Volume 2 - Circuit design and analysis*, Publishers of the Silesian University of Technology, Gliwice 2007.