

APPROVED BY

Riga Aeronautical Institute

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Instruction No. 15

**LABOUR SAFETY AND FIRE SAFETY
REGULATIONS
AT THE LABORATORY OF PHYSICS,
ELECTRONICS**

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**Labour Safety and Fire Safety Regulations
in Performance of Laboratory Work
at the RAI Laboratory of Physics, Electronics.**

1. General Requirements to Safety.

1.1. The instruction lays down the procedure of taking safety measures, when performing electrotechnical laboratory works. Work with laboratory equipment is related to the possibility to be subjected to an electric shock, therefore, every student must observe the requirements of the regulations. Received electric traumas depend on the current intensity going through the body.

Alternating current sensed by a human is from 0.6 to 1.5 mA, while direct current is from 5 to 7 mA.

Freezing alternating current is from 10 to 15 mA, while direct current is from 50 to 80 mA. When current intensity is 100 mA, the heart starts fibrillating and death occurs.

1.2 The analysis of reasons of fires caused by electrical equipment show that they mainly occur as a result of incorrect operation or damaged electrical equipment, when its operating instructions are violated.

1.3 Persons not younger than 17, which have had medical checkup, have been briefed and trained to work with the equipment, are allowed to constantly work with laboratory electrical equipment.

1.4 Each person working with electrical equipment should know and correctly fulfil their operating instructions, safety requirements and fire safety requirements.

1.5 If a student has come in contact with current, the intensity of which is harmful for the body, the voltage should be disconnected immediately (packet switch on the distribution board) and first aid should be provided to the victim in such a way not to be affected by the current oneself. The accident should be reported to the work manager.

1.6 If the victim had a serious electric trauma and the heart had stopped, artificial respiration and emergency should be called immediately.

1.7 If this instruction is not observed, the guilty person should be subject to responsibility under the law.

2. Labour Safety Requirements, when Starting Laboratory Work.

2.1. Before doing any practical work, its content, course of performance and procedure should be known. The workplace should not contain any extraneous objects (notes and bags should be placed on shelves under the table).

2.2. Before mounting electric circuits the conditions of packet switches on the respective board should be checked. They should be switched off (position "0"). Handles of autotransformers should be in their extreme left position.

Terminals and insulation of mounting wires of the circuit should be in working order.

3. Electrical and Fire Safety Requirements During the Performance of Works.

3.1. Observation of fire safety should be constantly observed in a laboratory.

3.2 It is not allowed to smoke in the laboratory room and the corridor.

3.3 To strictly observe the work discipline, not to be distracted from the work being performed and not to disturb others.

3.4 When mounting or dismantling current conductors, it is allowed to hold their plastic

terminals only. Terminals of each conductor should be connected one by one, without leaving any terminal disconnected.

- 3.5 Amvoltwattmeters 5M for measurement of current intensity should be included in the circuit only after they have been checked by the teacher and with the teacher's permission.
- 3.6 Do not touch uninsulated electric circuit links.
- 3.7 Voltage can be connected to a circuit only after it has been checked by the teacher and with the teacher's permission.
- 3.8 Fuses and wires should be replaced, the amperemeter should be connected, only when the packet switch on the board is switched off.
- 3.9 For fire prevention purposes all the measures to prevent discovered defects in electrical equipment should be taken.
- 3.10 It is necessary to constantly follow that electric drives, alarms and firefighting devices are in order.
- 3.11 The Laboratory of Physics should be equipped with CO₂ (carbon dioxide) fire extinguishers.

4. Safety Measures in Case of Emergency.

- 4.1. If there is an outbreak of fire in laboratory equipment, switch off the packet switch on the relevant board (position "0").
- 4.2. An outbreak of fire should be eliminated using a CO₂ fire extinguisher.
- 4.3. The accident should be reported to the person on duty by phone 109.
- 4.4. To know how to use a first aid kit in case of burns and to know its location.

5. Safety Measures, when Ending Laboratory Works.

- 5.1. To switch off the equipment: to switch the packet switch to position "0", to move handles of autotransformers to the extreme left position.
- 5.2. To dismantle the electric system, to place its parts in order on the mounting table.
- 5.3. If, when ending work or during mounting of a diagram, it is discovered that parts are damaged or have defects, they should be transferred to the work manager.
- 5.4. After all the classes are over, all the electrical loads should be disconnected.
- 5.5. Laboratory rooms should always be kept clean and in order, all waste should be removed from the room at the end of the working day.

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