OCCUPATIONAL SAFETY AND HEALTH

Matijana Slabe Marinč

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Provisions of this law are followed in all activities by all persons who are present in the working process (even the students during exercises).
CONCRETE MEASURES FOR SAFE AND HEALTHY WORK AT THE FACULTY

- Safety statement and risk assessment at FE
- Instructions on safe work
- Organizational regulations at FE
The faculty is obliged to ensure work safety and health. For this purpose it implements necessary measures such as:
- preventing dangers at work (during exercises),
- awareness and training,
- issuing safety at work instructions,
- ensuring first aid, fire safety and evacuation in case of a hazard,
- suitable organization and
- necessary material resources.
DANGERS IN A LABORATORY

• Work equipment
• Work procedures
• Installations
• Chemicals
RESPONSIBILITY AND JURISDICTION FOR SAFE WORK IN A LABORATORY

Any person who is present in a laboratory during a working process.

In case of a violation of the rules we may be penalized.
DUTIES AND RESPONSIBILITIES

Everybody needs to:

- correctly use work and personal safety equipment whenever required;
- work with such care to protect your own life and health and the life and health of the people around you;
- immediately report any defect, hazard, damage or other events that may risk your health and safety or the health and safety of others.
- do not attend exercises under the influence of alcohol, drugs or other substances;
DUTIES AND RESPONSIBILITIES

- Before starting work make sure that the work equipment works properly, that the working space is tidy and clean, that there are no visible faults and that no person is in the dangerous area of the work equipment.
- In case of group work it is necessary to agree on how to carry out the work.
- If anything is unclear, please ask.
RIGHTS

Anyone has the right to a safe working environment that enables safety and health while working.

Anyone has the right to refuse working:

- if they haven‘t been met beforehand with all dangers or hazards during work and security measures;
- if there is an immediate threat to their life or health due to poorly implemented security measures.
SUPERVISION

Supervision over the implementation of this Act, regulations based on the Act and other regulations on work safety and health, and security measures accepted by the faculty acts is carried out by the labour inspectorate.

Fines (financial punishments) are prescribed for minor offences made by a legal subject, person liable or an individual.
Any person who is harmed during exercises should seek first aid in the laboratory and immediately notify the head of the exercise.

The faculty provides first aid to the injured on the spot. For this purpose it provides trained persons with the knowledge of giving first aid and the prescribed medical supplies.
OSH TRAINING

FE needs to train students in safe laboratory work whenever:

- a new academic year starts,
- new technologies or new work equipment is being introduced,
- there is a change in the working process that may cause work safety to change.
PERSONAL PROTECTION EQUIPMENT

Personal protection equipment protect us from one or more simultaneously occurring risk factors.

If FE cannot otherwise limit the risk (either with technical or organizational measures), mandatory use of personal safety equipment is demanded.

Personal protection equipment can only be correctly used for its intended purpose and maintenance needs to be conducted regularly.
FE may issue dangerous chemicals for use only if they are labelled with a safety data sheet. The chemicals are labelled as dangerous due to their characteristics and are sorted in different groups accordingly.

Labelling dangerous chemicals:
graphic symbol (pictogram), warning (R) or hazard statements (H) and signal words (S) or precautionary statements (P).

Old labels:
- Harmful
- Explosive
- Corrosive
- Dangerous for the environment
- Oxidizing
- Toxic
- Highly flammable
DANGEROUS CHEMICALS

New labels

**Physical hazards**
- explosive
- flammable
- oxidizing
- compressed gas
- corrosive (for metals)

**Health hazards**
- acute toxicity
- skin corrosion
- respiratory sensitization, mutagenicity, carcinogenicity...
- acute toxicity, skin irritation, eye irritation, sensitization

**Environmental hazards**
- acute hazards to the equatic environment
USE OF DANGEROUS CHEMICALS

- All written and oral instructions, warnings, safety data sheets, laboratory rules etc. need to be observed.
- Chemicals need to be handled with care and precision.
- Take care of order and cleanliness in a working environment.
- While handling dangerous materials protect yourself with suitable personal safety equipment.
- No eating, drinking or storing food.
- Unnecessary staying at these places is not allowed.
- Proper disposal of dangerous waste.
We only use those paths (entrances, corridors, stairways…) that are safe and maintained.

Reducing the passability of exits, corridors, stairways and movement areas is not permitted.
FIRE PROTECTION
FIRES are a threat to human lives, animals, material possessions and the environment.

PREVENTION IS MOST IMPORTANT.

The most frequent cause of fire is HUMAN ERROR.
LEGAL REGULATION OF FIRE SAFETY (FS)

- Fire Protection Act (Official journal RS, nr. 3/07)
- UL Faculty of Electrical Engineering Fire regulations

published on the faculty web page
http://www.fe.uni-lj.si/o_fakulteti/pravilniki
GENERAL FS MEASURES

- Smoking is forbidden in all faculty premises, as well as use of open flames and conducting activities that may cause a fire or an explosion.
- Work (exercises...) needs to be carried out in such a manner that does not put fire safety at risk (observe the instructions, safety data sheet).
- Keep everything clean and in order.
GENERAL FS MEASURES

- Fire extinguishers, hydrants and fire alarms need to be **accessible and reachable**.

- Exits, corridors, stairways, fire staircases and emergency exits are regarded as evacuation ways and need to **always be free and passable**.

- Access routes to buildings and areas around buildings need to be **free**.
GENERAL FS MEASURES

- Fire extinguishers should not be used for other purposes.
- Staying in specially marked areas is not permitted.
- Any event that would start a fire or even an explosion needs to be reported to the holder of a pedagogical process or FE staff.
- Dilligently follow the FE fire regulations.
- Participate in rescue and fire fighting.
In order for something to burn, three conditions need to be fulfilled:

- flammable material
- oxygen
- heat

Fire is the process of rapid burning that spreads uncontrollably in space and time. Fire is characterized by the release of heat with smoke, toxic gases and flames. Hazard of carbon oxide poisoning (monoxide).
Extinguishing is a fire retardant procedure with methods that contain the process of burning, limit or even disable it. This is achieved by cooling, quenching or removing the flammable substance.
## FIRE CLASSES

<table>
<thead>
<tr>
<th>Fire class</th>
<th>Group of flammables</th>
<th>Flammable material</th>
<th>Fire extinguishing medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>solids</td>
<td>wood, paper textiles,…</td>
<td>water, foam, ABC-dust</td>
</tr>
<tr>
<td>B</td>
<td>liquids</td>
<td>petrol, oils, alcohols,…</td>
<td>foam, ABC-dust, carbon dioxide</td>
</tr>
<tr>
<td>C</td>
<td>gases</td>
<td>butane, hydrogen, acetylene,…</td>
<td>ABC-dust, carbon dioxide</td>
</tr>
</tbody>
</table>
Extinguishers (CO₂, dust, foam, etc.) are the most frequent and most effective extinguishing devices for damping starting fires. They differ in size and type of extinguishing medium.

Fire extinguishers are always marked in red.
HYDRANTS

They are extinguishing devices that use the water from the water supply network.

FE has built-in **internal wall-mounted hydrants**.

Extinguishing with water in the presence of active electrical power can only be done by trained individuals.
HANDY EXTINGUISHING TOOLS

- a bucket of water
- rubber hose or one made of artificial materials
- broom, shovel or branches with fresh leaves
- non-flammable tarp, cloth, blanket or other similar materials
- dry sand or earth
- kitchen pot cover
HOW TO USE EXTINGUISHERS

Handheld extinguisher with CO$_2$ and ABC dust
Handheld ABC dust extinguisher (S) under constant pressure

Preparation before extinguishing:
1. Relax the rubber hose.
2. Pull out the safety pin.
3. Press the handle of the valve.
4. Aim the dust current at the base of the flame.

The extinguisher starts to operate immediately.
Handheld CO$_2$ extinguisher

Preparation before extinguishing:
1. Relax the rubber hose.
2. Pull out the safety pin.
3. Press the lever of the extinguisher downwards.
4. Aim the current at the base of the flame.
EXTINGUISHING TECHNIQUE

**USING AN EXTINGUISHER**

Always aim in the direction of the wind!

**CORRECT:**

Leaking fluids are first being extinguished at the top and continued at the bottom!

**CORRECT:**

We start extinguishing at the front edge of the fire!

**CORRECT:**

After extinguishing the fire make sure that the fire is truly out...

**CORRECT:**

... and make sure to refill the extinguishers afterwards.

**WRONG:**

**WRONG:**
INSTRUCTIONS ON HOW TO REACT TO A FIRE

Handling in case of fire:

- In case there is an immediate threat of a fire, try to remove the danger or extinguish the fire with all available methods if it can be done safely without endangering yourself and others.

- Before you begin make sure that the device is fit for extinguishing burning matter and equipment.

- Help evacuate people who have trouble evacuating themselves.
INSTRUCTIONS ON HOW TO REACT TO A FIRE

- People located in an endangered area and do not participate in firefighting or saving others should evacuate the premises in an organized fashion.

- Evacuation routes need to be protected from smoke and spreading of the fire, so close the door after you leave the room.

- When those who help firefighting or saving others are in an immediate threat for their health or lives, they need to evacuate the endangered area immediately.

- If the starting fire cannot be extinguished, notify the FE staff immediately.
After the fire:

- Follow the instructions by the leader of the intervention and the head of the pedagogical process.

- Used up extinguishers must not be put back in their place; dispose of them instead.
WHEN NOT TO TAKE CARE OF THE FIRE ON YOUR OWN

- You don‘t know the type of the flammable material
- The fire spreads rapidly
- There is no suitable extinguishing equipment available nearby
- The room is filled with smoke
- “something tells us” to step back - intuition
The faculty is equipped with devices for detecting and reporting fire, therefore fire detectors are installed in the rooms of the faculty.

If the fire detector detects smoke, the fire alarm is triggered – **leave the premises immediately and evacuate to a rally point.**
Evacuation is the process of removing people, animals and material goods from a certain area. It can be partial or complete, depending on the situation in the building. It is performed for protection from danger if there are no other measures that would ensure safety.
EVACUATION – BASIC INSTRUCTIONS

- Close all windows and doors behind you during the evacuation.
- Never open doors that are hot to touch!
- Keep to the right and do not run.
- Rally outside at the rally point!
- Do not re-enter the building until it is clearly stated that it is safe again.

Evacuation routes are always marked with green.
Thank you for your attention