

# ESTONIAN MARITIME ACADEMY'S PNEUMATICS AND HYDRAULICS LAB (MA1-026) RULES FOR INTERNAL ORDER AND OCCUPATIONAL SAFETY

- [Estonian Maritime Academy](#)

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- [Form V5-1/0 Internal Work Procedure and Occupational Safety Rules Review Sheet](#)

## 1. General safety requirements

1.1. All individuals must undergo occupational safety instruction before commencing work in the Pneumatics and Hydraulics Lab. A person who has completed occupational safety instruction confirms, by signature, that he/she has read the regulations and the requirements set out in it and undertakes to comply with them. ([Form V5-1/0](#)).

1.2. Occupational safety instruction shall be conducted in accordance with the Internal Work Procedure and Occupational Safety Rules of the Pneumatics and Hydraulics Lab, the requirements of which must be adhered to by all the persons in the laboratory.

1.3. During the occupational safety instruction, the persons commencing work in the laboratory will be informed about the Internal Work Procedure and Occupational Safety Rules, the risk factors in the work environment and the use of personal protective equipment, ergonomically correct working positions and techniques, laboratory work procedures, fire and electrical safety requirements,

the locations of first aid equipment and fire extinguishing equipment, the safety signs used at the workplace and the locations of the emergency exits and routes.

1.4. Occupational safety instruction is conducted by a supervisor/lecturer.

1.5. The lecturer responsible for the laboratories and workshops of the Centre of Maritime Education and Training is responsible for the maintenance of the equipment of the Pneumatics and Hydraulics Lab.

1.6. An access card is required to enter the lab; students are allowed to enter only with the permission of the supervisor or a lecturer.

1.7. Users of the lab are required to promptly inform the supervisor/lecturer and other lab users of any detected deficiencies or equipment malfunctions. Working with malfunctioning equipment is prohibited; in the event of a hazardous situation, work must be halted immediately.

1.8. Users of the lab are not permitted to operate alone any equipment without prior safety instruction and approval to commence work granted by the supervisor/lecturer. If you have any doubts or questions, please contact the supervisor/ lecturer.

1.9. If you notice another lab user engaging in improper or prohibited behaviour, you should inform him/her and, if necessary, also notify the supervisor/lecturer thereof.

1.10. It must be safe to work in the lab; it is recommended that you move around in the lab only when necessary and without haste, so as not to disturb others. Move with caution to avoid slipping or falling, as well as to prevent injuries and damage to lab equipment. Engaging in activities that interfere with studies in the lab is prohibited.

1.11. The working environment must be organised to ensure safe and ergonomic working conditions. Remove unnecessary and disturbing objects from the work area.

1.12. In the event of failure to comply with the requirements set out in the Internal Work Procedure and Occupational Safety Rules, the laboratory user shall be immediately removed from the work being performed. In the event of repeated non-compliance, the lab user shall be removed from all works.

1.13. Any material damage to the university resulting from the intentional violation or negligence in the fulfilment of the requirements set out in the Internal Work Procedure and Occupational Safety Rules shall be compensated in full by the person who caused the damage.

1.14. The supervisor of the work/lecturer shall be informed immediately of any accident/injury or fire occurring during laboratory work. Appropriate measures must be taken depending on the accident.

1.15. In case of an accident involving a victim, the victim shall be removed from the danger zone, and if necessary, first aid providers or an ambulance (phone number 112) must be called, and it must be ensured that first aid is provided to the victim.

1.16. In the event of a serious accident, the inviolability of the workplace and equipment shall be ensured until the arrival of the chief working environment specialist, the representative of the Labour Inspectorate or the police, and until obtaining permission from them to resume work.

1.17. If it is not possible to ensure inviolability of the workplace and equipment, their condition at the time of the accident must be recorded.

1.18. In case of a serious and imminent risk of an accident, actions shall be taken by applying one's knowledge and available technical means to prevent potential consequences, even if it is not possible to immediately contact the supervisor/lecturer.

1.19. In case of a serious or unavoidable risk of an accident, the persons working in the laboratory must leave the workplace quickly and safely; a person who leaves without permission must not be punished or placed at any disadvantage.

1.20. In case of fire, safety of people and their quick evacuation or rescue from the danger zone must be ensured.

1.20.1. A person who discovers fire is obliged to immediately call the emergency number 112 and provide the following information to the rescue centre:

1.20.1.1. the exact address where the fire is located, details on what is burning, and the person reporting the fire;

1.20.1.2. answers to the questions asked by the rescue official;

1.20.1.3. the person must not end the call until permission to do so

is granted.

1.21. As far as possible, begin extinguishing the fire using basic fire extinguishing equipment and close the doors and windows to prevent the spread of fire.

1.22. When the rescue team arrives at the scene, the person who discovered the fire or the representative of the possessor of the site shall inform the head of the rescue team of the following:

1.22.1. the source and extent of the fire;

1.22.2. the potential hazard to people;

1.22.3. other potential hazards arising from the fire (explosions, hazardous chemicals, electrical equipment, etc.).

## **2. In the laboratory, it is prohibited:**

2.1. to turn on the switches of the distribution board without a special need. The lecturer supervising the work turns on the power supply;

2.2. to connect or disconnect electrical wires while the power supply is turned on;

2.3. to use software and hardware that are not related to the practical assignment;

2.4. to copy the software from the laboratory computers;

2.5. to leave the laboratory for a longer period of time without the supervisor's permission;

2.6. to take laboratory equipment out of the room.

2.7. Laboratory equipment and instruments must only be used for study and research purposes.

2.8. Storing and using objects and substances (including foodstuffs and beverages) not related to the laboratory's activities is prohibited.

## 3. Safety requirements before commencing work at workstations

3.1. Practical work takes place at the designated times known to the students. The prerequisite for practical work is that students arrive at the laboratory on time.

3.2. Before commencing practical work, students must prepare as specified in the work instructions or prerequisite courses, familiarize themselves with the data sheets of the workstation components and adhere to all safety requirements.

3.3. Before starting the work, check visually the condition of the test site and remove any unnecessary items from the test site.

3.4. In the case of electrical test equipment, check the condition of the electrical wires and grounding.

3.5. Verify that all components are securely attached to the profile plate – observe **assembly options A, B, C, D**.

3.5.1. **Option A, a locking system** for light devices with no load (e.g. pilot valves). Simply click the devices into the profile plate slot. Press the blue lever to release a device.

3.5.2. **Option B, a rotating system** for medium-weight loaded devices (e.g. actuators). These devices are secured on a profile plate using T-head bolts. Roughened nuts are used for securing and releasing.

3.5.3. **Option C, a screw system** for heavy-weight loaded devices or devices that are rarely removed from the profile plate e.g. a start-up valve with a filter control valve). The abovementioned devices are mounted using socket screws and T-head bolts.

3.5.4. **Option D, a connector system** for light devices with no load incorporating locking pawls (e.g., indicators). The abovementioned devices are secured using plug adapters.

## 4. Safety requirements while working in the workshop

- 4.1. Laboratory users must keep their work area clean.
- 4.2. Touching moving equipment parts and electrically conductive elements with your hands is prohibited.
- 4.3. Cleaning or oiling of equipment currently in operation is prohibited.

## **5. Safety requirements after completing work in the laboratory**

- 5.1. After completing work, the equipment must be disconnected from the mains.
- 5.2. The work area must be cleaned and organised.
- 5.3. The supervisor shall be notified of any deficiencies that occurred during work.

## **6. Pneumatics**

## **7. Hydraulics**

## **8. Completion of practical work**

- 8.1. Students present the measurement results recorded during the performance of the assignment to the supervisor.
- 8.2. The work in the laboratory is considered completed when the participants have been registered and the workplace has been presented to the supervisor.
- 8.3. The final assessment of laboratory work is conducted in accordance with the procedure established by the supervisor:
  - 8.3.1. a student shall submit the work reports meeting the requirements established by the supervisor by the deadline;

- 8.3.2. practical assignments are defended orally or in writing;
- 8.3.3. the skills demonstrated during the assignment, as well as the level of the report in terms of content and form are taken into account when assessing practical assignments;
- 8.3.4. problems occurring due to failure to attend a practical assignment or defence shall be resolved on a case-by-case basis.