

ESTONIAN MARITIME ACADEMY'S AUTOMATION LABORATORY (MA1-046) RULES FOR INTERNAL ORDER AND OCCUPATIONAL SAFETY

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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 Process Automation 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 Process Automation Lab, the requirements of which must be adhered to by all the persons in the lab.

1.3. During the occupational safety instruction, the persons commencing work in the lab 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, the laboratory work procedures, the 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 Process Automation Lab.

1.6. An access card is required to enter the lab; students are allowed to enter only with the permission of the supervisor/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 independently 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 thereof 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 arranged 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 lab 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 lab 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. Safety requirements while working in the lab

2.1. Lab users may work at a workstation only in the presence of a supervisor/lecturer.

2.2. Only the work specified in the instructions is permitted; unauthorised experiments are prohibited.

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

3. Electricity

3.1. Electrical wires can only be connected when the power supply has been switched off.

3.2. Use only low voltage DC up to 24 V.

3.3. The heating element operates at a voltage of 230 V and only qualified personnel are allowed to work with such components.

3.4. Before using an electrical device, make sure that the sockets, cables and plugs of the electrical devices are undamaged and that the device is suitable for the electrical supply with which it is going to be used

3.5. Do not touch grounded metal objects with the other hand when

turning an electrical device on or off.

3.6. If you detect a burning smell, see sparks, or notice unexpected heating of a device or any of its parts when using an electrical device, stop the work immediately, disconnect the device from the mains and inform the supervisor/lecturer.

3.7. A burning electrical device must be disconnected from the power supply at the electrical panel without touching the device.

3.8. Burning electrical equipment must not be extinguished with water. Use a dry powder or CO₂ fire extinguisher to extinguish the fire.

3.9. If a device functions differently than usual upon operation, it may be a sign of technical malfunction of the device. In such cases, switch off the device or unplug the cord, and immediately notify the laboratory work supervisor.

3.10. If you burn your hands, quickly put your hands under cold running water or moisten the burnt areas with a burn relief agent/ointment.

4. Pneumatics

4.1. Do not exceed the maximum permitted pressure of 8 bar (800 kPa).

4.2. All connections and mounting brackets must be properly secured prior to compressed air system operation.

4.3. Do not disassemble pressurized compressed air hoses.

4.4. Special attention must be paid on pumping compressed air into the system, as the cylinders can move instantly.

5. Mechanics

5.1. All components should be securely fastened to the base.

5.2. Do not touch the components with your hands before turning off the device.

5.3. A pump must be fixed horizontally or vertically. The pressure pipe of the pump must be pointed upwards. A pump must be installed in a manner that ensures it is always filled with fluid (see the data sheet).

6. Process technology

- 6.1. Before filling the containers with water, ensure that both the 24 V and 230 V power supplies are switched off!
- 6.2. Use water that meets at least the drinking water standards to ensure long and maintenance-free operation of the system (the proportional valve and pump).
- 6.3. The maximum permitted temperature in water tanks is +65°C.
- 6.4. Do not turn on the heater until it is fully submerged in water.
- 6.5. Make sure the pressure in the pipe system does not exceed 0.5 bar.
- 6.6. Do not run a pump without fluid, do not use seawater or contaminated water in it.
- 6.7. Make sure that all water is drained completely before making any changes to the pipe system.
- 6.8. Water can be drained from the workstation by opening valve V105.
- 6.9. Do not leave water in containers for extended periods, as this can promote the growth of bacteria such as Legionella (pathogens).

7. Safety requirements after completing work in the lab

- 7.1. After completing work in the lab, each student shall tidy up his/her work area and return the tools to their designated places.
- 7.2. After completing work, the equipment must be disconnected from the mains.
- 7.3. The workplace must be cleaned and organised.
- 7.4. The supervisor/lecturer shall be notified of any deficiencies that occurred during work.