UMMC
Technical
University

Interactive laboratory research of variable-frequency electric drive at the UMMC Technical University

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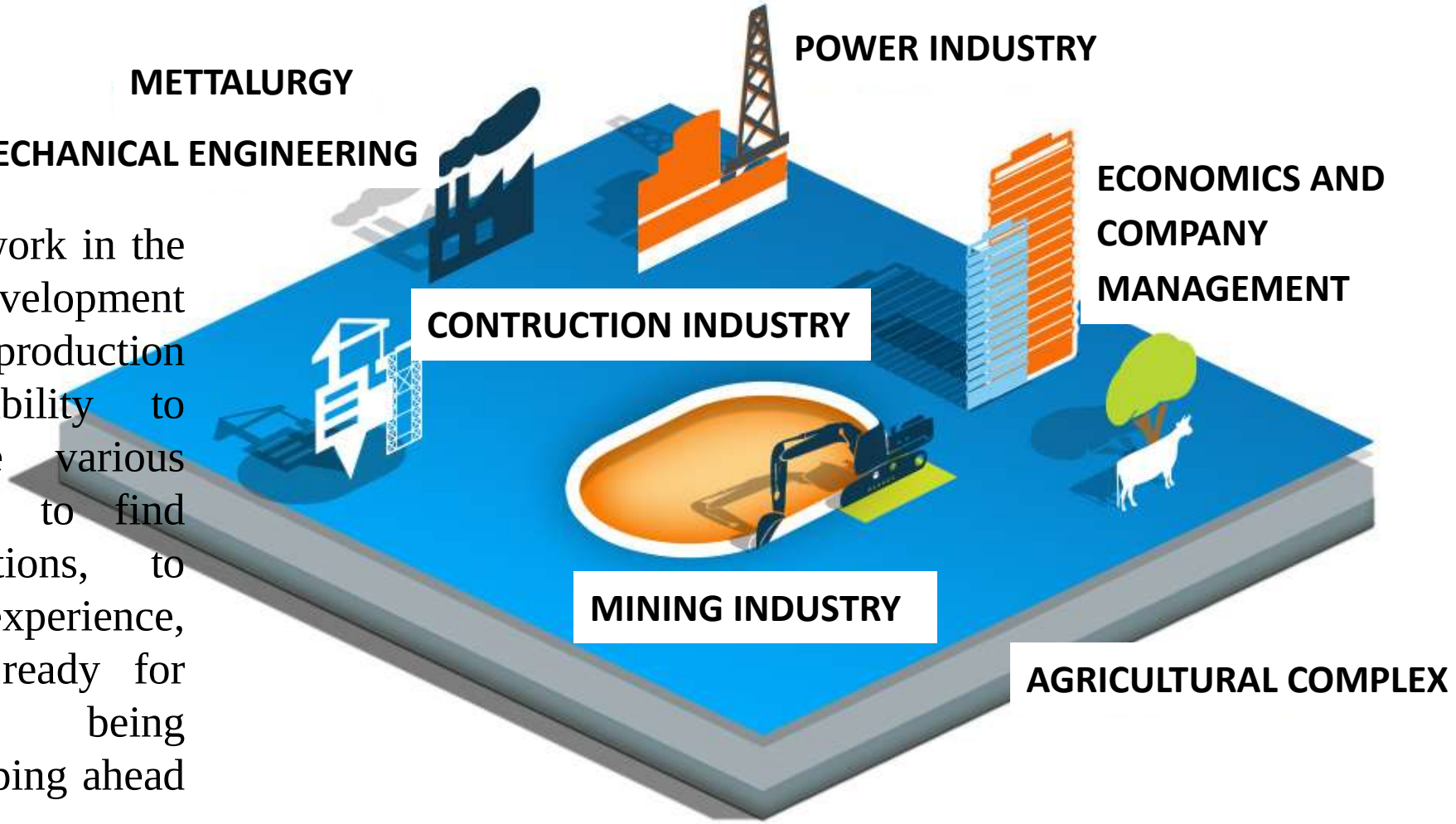
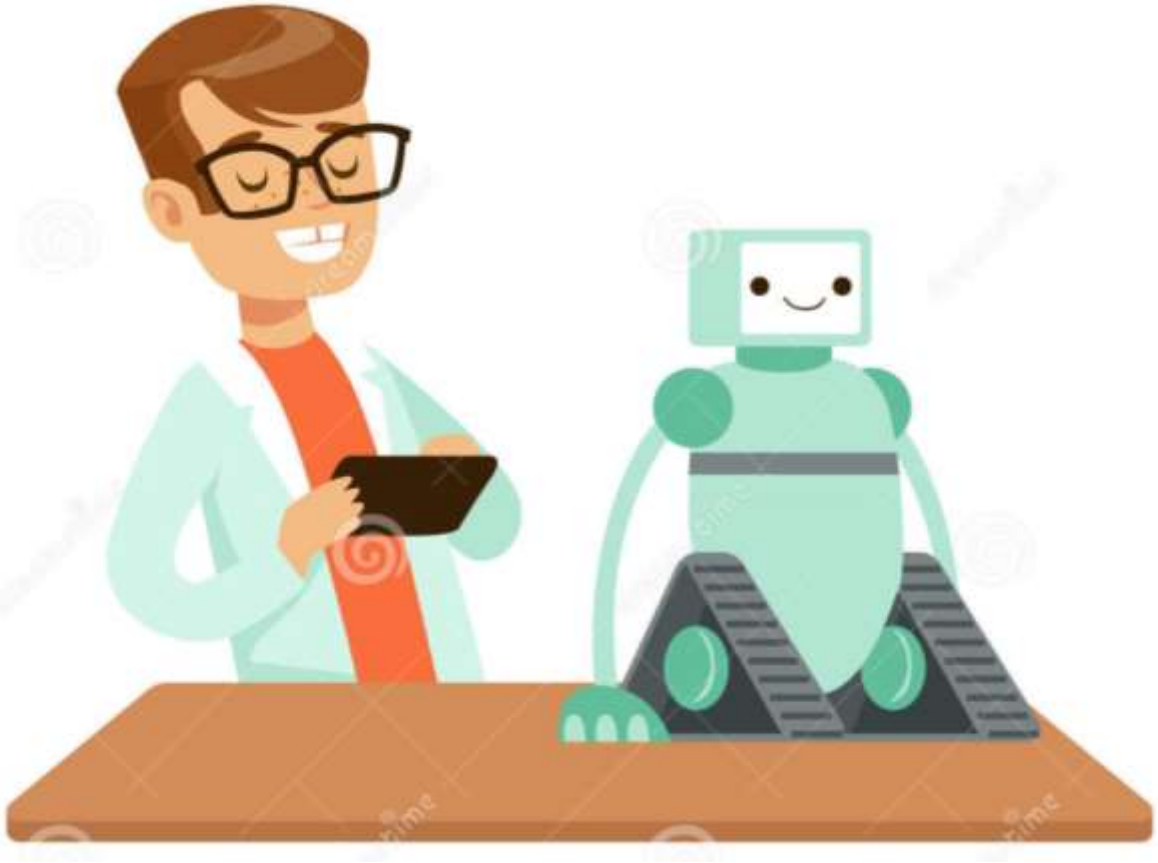
KEY DIRECTIONS

The engineers' work in the context of the development of digital production requires the ability to effectively solve various production tasks, to find innovative solutions, to streamline the experience, including being ready for new activities, being proactive and keeping ahead of the game.



The labor market seeks answers to the following questions:



- What engineering staff is able to implement a fundamentally new approach to the development of technical devices, as well as to the methods of their manufacture and operation in the Russian industry?
- How to develop creative engineers to be able to work in a new environment?

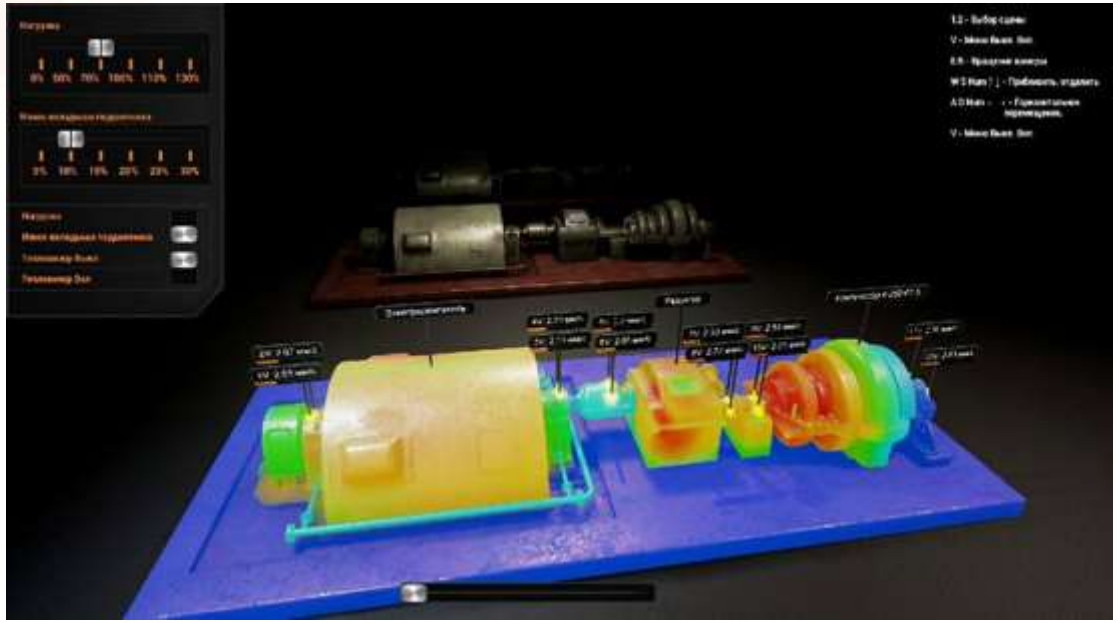
INTELLIGENT LABORATORY of automated electric drive

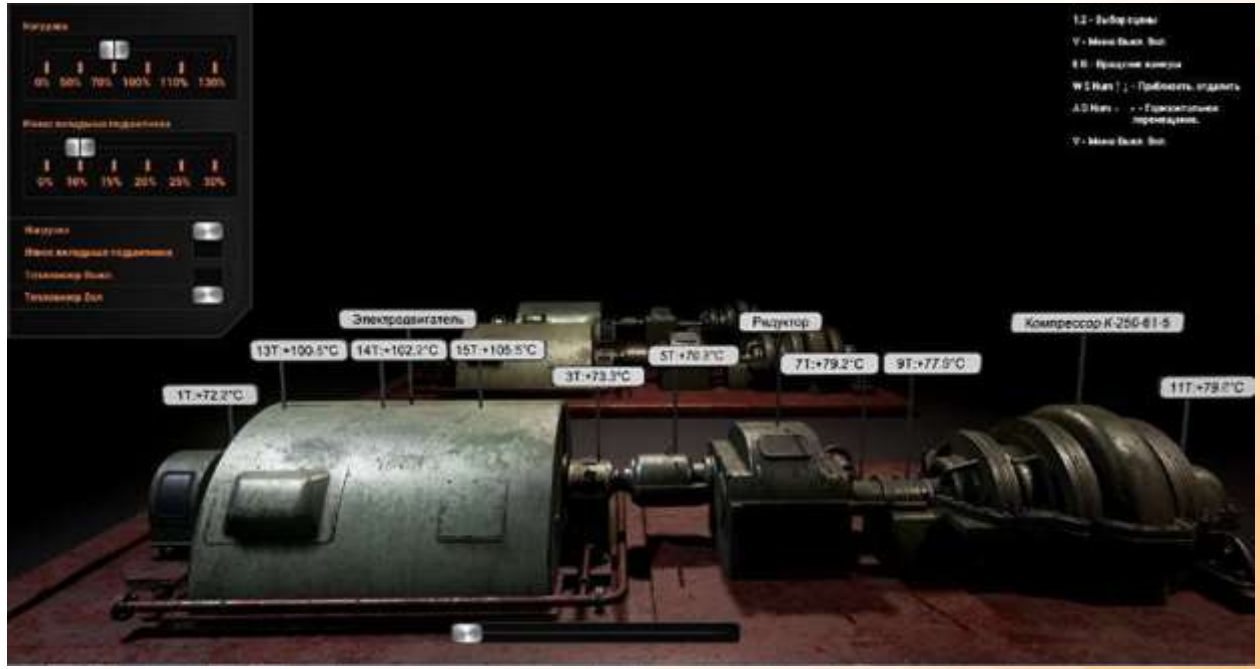
Specific features of UMMC TU laboratories are the following:

- Data communication among laboratories;
- Integration of physical and 3D-models of technological equipment with mathematical “plot” of their work process, including digital data of enterprises;
- Availability of web-interface for automatic generation of laboratory research reports and for provision of remote access to laboratory equipment;
- Availability of 3D-simulator for training staff to act in emergencies.

Immersion In Production Tasks In the Intelligent Laboratory Environment

Integration of physical and 3D models of process equipment with a mathematical "plot" of their work processes





INTELLIGENT LABORATORY

Integration of physical models with 3D models of real equipment of UMMC enterprises.

Students are immersed in the production tasks.

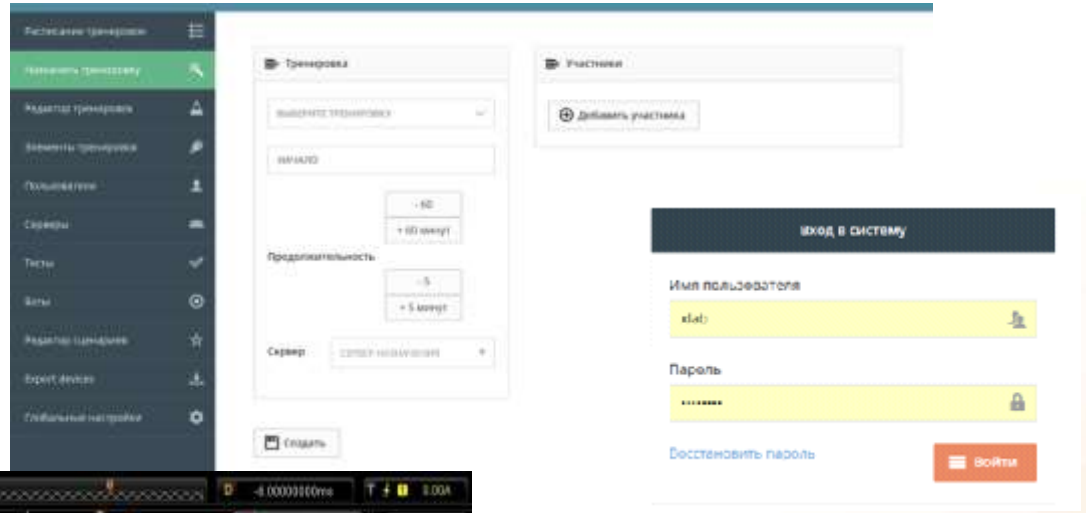
Digital model of the main step-down substation of a mining enterprise for simulator training.

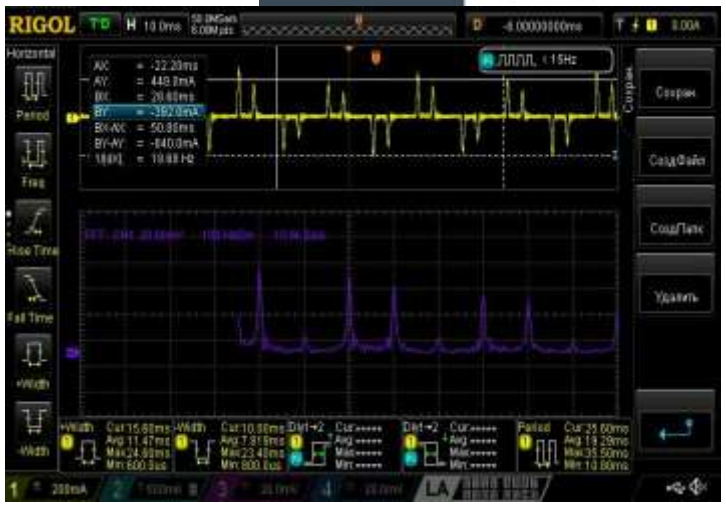
Interactive laboratory works in UMMC TU

In the course of implementing the program, the teacher-student dialogue is periodically resumed at different stages, e.g. when checking experimental designs, tuning instruments, setting the frequency converter, and discussing the case solution.

Using the XLab.LMS system, students generate a laboratory report, which is automatically transfered to the teacher, who can assess the performance of work directly in the classroom.

The duration of interactive laboratory classes can be 6-8 academic hours. As a result, there is a deep immersion in practical activities, which contributes to the formation of professional engineering competencies in accordance with the professional and corporate standards of the employer.





Thank you for your attention!