

## Polytechnic Faculty – winter semester

Name of subject	Field of study	Form of classes	ECTS points	Short summary
Ecology with Elements of Environmental Management	Electrical Engineering	Lecture Practical class	1	Antropogenization of natural ecosystems. Environmental management. Environmental impacts: radiation, heavy metals, persistent organic pollutants, other toxic organic substances. Industrial techniques and technologies for environmental protection. Recycling of electric and electronic wastes.
Theory of Signal Processing	Electrical Engineering	Lecture Project class Laboratory class	2 1 2	1. Signal classification. 2. Signal theory fundamentals. 3. Spectral analysis. Fourier series and discrete-Fourier transforms. 4. Analog and digital filters. 5. DSP applications.
Electric Drive and Power Electronics Basics	Electrical Engineering	Lecture Project class Laboratory class	3 1 2	Fundamentals of Electric Drive and Power Electronics. Electromechanical system. Construction and operation of industrial drive systems with electric motors - basic issues. Basic power electronics systems. Control of DC and AC motors. Static (mechanical) and dynamic characteristics. Mathematical models of electric drives.
Engineering Materials Design	Materials Engineering	Seminar	3	English technical language on the topics of Materials Engineering. Selection and design of engineering materials, taking into consideration functional, economic and ecological factors. Use of engineering databases and electronic data

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				sources about engineering materials, their modifications and processing.
Process Automation Equipment	Automation and Robotics	Lecture Laboratory class	2 3	The course covers problems associated to hardware and software of automation devices.