

Title <b>Applied Electrical Engineering and Electronics (El. i elek)</b>	Code <b>1010401231010320692</b>
Field <b>Fizyka Techniczna</b>	Year / Semester <b>2 / 3</b>
Specialty -	Course <b>core</b>
Hours Lectures: <b>2</b> Classes: -    Laboratory: <b>1</b> Projects / seminars: -	Number of credits <b>5</b>
	Language <b>polish</b>

**Lecturer:**

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**Faculty:**

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**Status of the course in the study program:**

Core course of the study for Technical Physics, Faculty of Technical Physics.

**Assumptions and objectives of the course:**

Study of phenomena taking place in electrical machines and electronic devices and laws controlling them. Basic knowledge a construction, function and application. attainment of competence of project.

**Contents of the course (course description):**

Theoretical and practical problems of electrotechnics and electronics. Principle of operation of electric devices and elements of electronic:

- transformer (single-phase) construction, principle of operation, scheme, vectorial diagrams, losses, efficiency, special transformers, operating conditions, calculations,
- induction motors (three- phase, single phase), solution of structure, principle of operation, mechanical characteristic curve, diagram of Sankey's, starting, new tendency of development, vibroacoustic phenomena, economical solutions, project,
- measuring instruments, (ammeter, voltmeter, wattmeter, luxmeter) electricity meter,
- light sources, accumulator battery, circuits of resonance, rectifiers, filters,
- unconventional renewable sources of energy (energy of wind, water, biomass, geothermal, solar) and methods of its conversion into electric energy.
- electric and hybrid vehicles.

Project Self-dependent project of applications renewable energy sources: solar car with accumulator battery.

Laboratory exercises beings in line with the basic course.

**Introductory courses and the required pre-knowledge:**

Basic knowledge of electrotechnics and electronics and applications.

**Courses form and teaching methods:**

Lecture, project, laboratory, individual work with students.

**Form and terms of complete the course - requirements and assessment methods:**

Oral and written examination

**Basic Bibliography:**

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**Additional Bibliography:**

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