

DESCRIPTION OF THE COURSES

- Course code: ARR3312
- Course title: **CONVERTERS OF ELECTRICAL AND MAGNETIC QUANTITIES**
- Language of the lecturer: POLISH

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	2		1		
<i>Number of hours/semester*</i>	30		15		
<i>Form of the course completion</i>	colloquium		pass		
<i>ECTS credits</i>	??		??		
<i>Total Student's Workload</i>	??		??		

- Level of the course (basic/advanced): *ADVANCED*
- Prerequisites:
Theoretical electrical engineering, electrical metrology, basic electrical engineering, physics.
- Name, first name and degree of the lecturer/supervisor:
JERZY BAJOREK, PhD, Eng
- Names, first names and degrees of the team's members:
GRZEGORZ KOSOBUDZKI, PhD, Eng.
- Year:..V..... Semester: 9.
- Type of the course (obligatory/optional): *OPTIONAL*
- Aims of the course (effects of the course):
- Form of the teaching (traditional/e-learning): *TRADITIONALE*
- Course description:
Electrical and magnetic quantities, definitions, interdependences. Construction, properties and new solutions of electric and magnetic quantities converters. Converters output signals' adaptation to computerized systems. Examination of exemplary converter solutions.
- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
1. <i>Basic electric and magnetic quantities, definitions, interdependences.</i>	2
2. <i>Voltage dividers: resistive, capacitive and capacitive-resistive.</i>	2
3. <i>Inductive voltage dividers; voltage transformers</i>	2
4. <i>Voltage sampling and quantization; exemplary solutions of AC converters.</i>	2
5. <i>Resistive current converters, current transformers.</i>	2
6. <i>Inductive current sensors.</i>	2
7. <i>Inductive sensors of tangent component of magnetic field intensity and magnetic induction.</i>	2
8. <i>Voltage actual value converters.</i>	2
9. <i>Current actual value converters.</i>	2
10. <i>Magnetogalvanic converters of magnetic field and electric current.</i>	2
11. <i>Power converters.</i>	4

12. <i>Application of voltage and current actual value converters for power determination.</i>	2
13. <i>Application of voltage and current actual value converters for determination of electrical objects' parameters</i>	2
14. <i>Colloquium</i>	2

- Classes – the contents:
- Seminars – the contents:
- Laboratory – the contents:
Examination of exemplary solutions of sensors and converters' properties and their application for measurements of electrical and magnetic quantities.
- Project – the contents:
- Basic literature:
 1. *Nowak J., Przetwarzanie wielkości charakteryzujących pole magnetyczne, Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2005.*
 2. *Sources materials – available in Laboratory of Magnetic Quantities Measurements of Institute of Machines, Drivers and Electrical Measurements*
- Additional literature:
 1. *Bolikowski J., Czarnecki L., Milek M.: "Pomiary wartości skutecznej i mocy w obwodach o przebiegach niesinusoidalnych". PWN Warszawa 1990r.*
 2. *Kuśnierek. Z.: "Pomiary mocy i energii w układach elektroenergetycznych", WNT, Warszawa 1994r*
- Conditions of the course acceptance/creditation:
100% acceptance of laboratory classes, examination

* - depending on a system of studies