STUDY MODULE DESCRIPTION FORM

Name of the module/subject **Mechanical Measurement**		Code **1010604141010610398**
Field of study **Mechanical Engineering**	Profile of study (general academic, practical) **(brak)**	Year /Semester **2 / 4**
Elective path/specialty **-**	Subject offered in: **Polish**	Course (compulsory, elective) **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time) **part-time**	
No. of hours Lecture: **10** Classes: **-** Laboratory: **8** Project/seminars: **-**		No. of credits **3**
Status of the course in the study program (Basic, major, other) **(brak)**	(university-wide, from another field) **(brak)**	
Education areas and fields of science and art **technical sciences**		ECTS distribution (number and %) **3 100%**

Responsible for subject / lecturer:

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Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	It has a basic knowledge of physics, mechanics and strength of materials
2	**Skills**	-XXX
3	**Social competencies**	-XXX

Assumptions and objectives of the course:

Learning the methods of measuring the mechanical

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Has a basic knowledge of linear measurement methods, stress, strain, velocity, temperature and fluid streams measurement, including electrical methods of measurement. - [K1A_W14]

Skills:

1. Is able to properly use modern measurement equipment for the main physical quantities used in the study of machines and production control. - [K1A_U16]

Social competencies:

1. Has a sense of responsibility for one?s own work and is willing to comply with the principles of teamwork and taking responsibility for collaborative tasks. - [K1A_K04]

Assessment methods of study outcomes

Assessment on the basis of test mastery of knowledge from the lectures and the current control preparation for laboratory exercises and evaluate their progress and report.

Course description

Scientific knowledge. The methodology of empirical research. Studies on the machinery stages of the construction, manufacturing and maintenance. Metrological concepts: size, ownership, property value. measurements; definitions, systems of units. General principles of mechanical measurement methods. Measurement of stress, force, torque and rotational speed. Construction of the measuring system. The measurement of sensor, transmitter, meter, recorder. Computer software for performing: analysis of registration and archiving of measurements. Error analysis, development results and formulate conclusions from measurement

Basic bibliography:

1. Hagel R., Zakrzewski J.: Miernictwo dynamiczne, WNT Warszawa 1984
2. Nawrocki W.: Komputerowe systemy pomiarowe, WKŁ Warszawa 2002
3. Piotrowski J.: Podstawy miernictwa, WNT Warszawa 2002

Additional bibliography:

Result of average student's workload

Activity	Time (working hours)
1. Udział w wykładach	15
2. Przygotowanie do zaliczenia	7
3. Udział w zaliczeniu	2
4. Udział w ćwiczeniach laboratoryjnych	15
5. Przygotowanie do ćwiczeń laboratoryjnych	12
6. Utrwalanie treści ćwiczeń i wykonanie sprawozdania	12
7. Udział w zaliczeniu ćwiczeń laboratoryjnych	1
8. Konsultacje	3

Student's workload

Source of workload	hours	ECTS
Total workload	67	3
Contact hours	36	1
Practical activities	42	2