

**DOCTORAL SCHOOL OF WROCLAW UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

SUPERVISOR DECLARING/CONDUCTING COURSE: Andrzej Szczurek, PhD, DSc
DEPARTMENT: Faculty of Environmental Engineering
SCIENTIFIC DISCIPLINE: environmental engineering, mining, and energy

COURSE CARD

Course name in Polish: Czujniki wybranych wielkości fizycznych

Course name in English: Sensors of physical quantities

Course language: polish / ~~english~~

The course is intended for all PhD students: YES / ~~NO~~

1) ~~BASIC COURSE~~

2) ~~SPECIALIST COURSE~~

3) ~~SEMINAR~~

4) ~~HUMANISTIC COURSE~~

5) ~~LANGUAGE~~

6) ~~RESEARCH SKILLS~~

Subject code: IGQ100222W

* delete as applicable

	Lecture	Foreign language course	Seminar	Mixed forms
Number of hours of organized classes in university (ZZU)	15			
Grading	Exam	Exam	Oral presentation	Exam, inspection, evaluation classes

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. Basic knowledge in physics and metrology.

COURSE OBJECTIVES

C1 Introduction to sensor applications in environmental measurements.

C2 The course provides information about the principles of operation of sensors of various physical quantities and their applications.

PROGRAM CONTENTS

Form of classes		Number of hours
Lec 1	Introduction	1

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Lec 2	Principle of sensor operation, measurement system	2
Lec 3	Temperature sensors	2
Lec 4	Humidity sensors	2
Lec 5	Velocity and flow sensors	2
Lec 6	Pressure sensors	2
Lec 7	Sound sensors and vibration sensors	2
Lec 8	Sound sensors and vibration sensors	2
	Total hours:	15

TEACHING TOOLS USED

N1. Inform lecture
N2. Problem lecture

ACHIEVED SUBJECT LEARNING OUTCOMES

Type of learning outcome	Code of learning outcome	Assessment of learning outcome
knowledge	P8S_WG	Exam
knowledge	P8S_WK	Exam

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Janusz Piotrowski: Pomiary. Czujniki i metody pomiarowe wybranych wielkości fizycznych i składu chemicznego, Wydawnictwo Naukowe PWN, 2021

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

Andrzej Szczurek (andrzej.szczurek@pwr.edu.pl)