

COURSE DESCRIPTION

- Course name: Microsystems - Do you know what the MEMS are?

<i>Form of course</i>	<i>Lecture</i>	<i>Tutorial</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Total number of hours</i>			46		14
<i>Form of completion</i>					

- Initial requirements: -
- Name, surname, title of teacher: Wojciech Kubicki, PhD
- Aims of course and educational outcomes:
Students learn about MEMS structures and their application in many fields.
- Form of teaching (traditional / e-learning): traditional, laboratory
- Short description of the course content:
A set of laboratory exercises covering the issues of microfluidics, MEMS sensors present in common devices (eg. smartphones), devices and sensor supply systems, optical microsystems, including analytical ones, and 3D printing of plastic microsystems.
- Laboratory – content:

Form of classes - lecture		Number of hours
Lec1	Visitation of faculty laboratories	4
Lec2	Gas micro-pump - piezoelectric actuation in a microscale	4
Lec3	Microflow control - cross valve	4
Lec4	Barometric altimeter	4
Lec5	IMU platform for avionics	4
Lec6	Vibrating piezoelectric transducer of mechanical energy for electricity - supply of "zero-energy" sensors	4
Lec7	Energy cascade - supply of "zero-energy" sensors	4
Lec8	Micro-gear: microsystem project in 3D printing technology	5
Lec9	Optical properties of thin-film layers	4
Lec10	Chip-electrophoresis	4
Lec11	3D printing and microsystem characterization	5
	Total hours	46

- Basic literature: -
- Additional literature: scientific publication (articles) related to laboratory topics.
- Completion rules: each laboratory will be summarized in form of short report; the report will be completed during classes.