Title **(Podstawy automatyki)**	Code **10102513410102202400**
Field **Mechatronics**	Year / Semester **2 / 4**
Specialty **-**	Course **core**
Hours Lectures: **1** Classes: **1** Laboratory: **1** Projects / seminars: **-**	Number of credits **4**
	Language **polish**

Lecturer:

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Faculty:

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Status of the course in the study program:

The basic technical subjects

Assumptions and objectives of the course:

Students should obtain knowledge of theoretical and practical rules of discrete and continuous control systems and good skill of analysis and synthesis of these systems. They should recognise the basic elements of automatic control system as well.

Contents of the course (course description):

Introduction. Control development, main definitions. Control systems classification, computer as a universal control unit. Laplace transforms.

Continuous ? time control systems. Mathematics models of linear and non-linear systems. Transfer functions of linear systems. Elementary characteristics of linear systems. Block diagrams. Linear and non-linear controllers. The general quality properties of control systems (stability, steady ? state error, integral criterions).

The static characteristics of non-linear systems. Linearisation. Stability of non-linear systems. On-off controllers.

Discrete control systems.

a)switching control systems. Definition and classification, Boolean algebra, logistic gates, Boolean function, minimisation methods (algebraic and Karnaugh method of minimisation), the logistic diagrams, memories, basic control elements and systems.

b)pulse control systems. Classification, Z -transforms as a discrete generalisation of L ? transform, basic pulse control characteristics, stability of pulse control systems.

Base of robotics. Classification, main definition and examples of designing

and application of robots. Robots kinematics. Elements of automatisation in industrial robots. Control and drive systems of industrial robots.

Introductory courses and the required pre-knowledge:

The basic knowledge in high mathematics, physics, mechanics, electrical and electronical engineering.

Courses form and teaching methods:

Lectures supported by transparencies and computers software (e.g. MATLAB-SIMULINK), auditory and laboratory exercises.

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

Test and oral exam.

Basic Bibliography:

http://www.put.poznan.pl/

Additional Bibliography:

Additional Bibliography: