STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
Modelling, identification and computer		**1010332211010335632**
Field of study	Profile of study (general academic, practical)	Year /Semester
Automatic Control and Robotics	**general academic**	**1 / 1**
Elective path/specialty	Subject offered in:	Course (compulsory, elective)
-	**Polish**	**obligatory**
Cycle of study:	Form of study (full-time,part-time)	
Second-cycle studies	**full-time**	
No. of hours		No. of credits
Lecture: **45** Classes: **-** Laboratory: **30** Project/seminars: **-**		**6**
Status of the course in the study program (Basic, major, other)	(university-wide, from another field)	
other	**university-wide**	
Education areas and fields of science and art		ECTS distribution (number and %)

Responsible for subject / lecturer:

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Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	K_W06: He has knowledge of the theory of linear dynamic systems, including some modeling and stability theory, knows and understands the basic properties of linear dynamic elements in the time and frequency domain and nonlinear properties of the selected items, know and understand the design techniques of linear control systems using described in the state space.
2	**Skills**	K_U01: Can critical use of information literature, databases, and other sources, has a self-learning skills in order to improve and update professional skills.
3	**Social competencies**	K_K01: Understands and knows the need for continuous training opportunities, improving professional skills, personal and social, can inspire and organize the learning process of others.

Assumptions and objectives of the course:

To familiarize students with various development environments serving the modeling and simulation of dynamic objects and methods of identifying objects. Presentation of the basic features and capabilities of selected programming environments. Presentation of ways to use in their programs of different modeling objects.

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

Knowledge:

1. He has extended knowledge of modeling and identification of linear and nonlinear systems - [K_W08+++]

Skills:

1. Can critical use of information literature, databases, and other sources, has a self-learning skills in order to improve and update professional skills. - [K_U01+]

2. Can set models of complex systems and processes, and use them for the purposes of analysis and design of control systems and robotics. - [K_U04+++]

Social competencies:

1. He has a sense of responsibility for their own work and a willingness to comply with the principles of teamwork and shared responsibility for the implementation of tasks, able to manage a team, set goals and define priorities to carry out their tasks. - [K_K03+]

Assessment methods of study outcomes

Lecture: exam

Lab: check of the model programming skills, and the skills of analysis and synthesis of dynamic objects

Course description

Lecture: the programming languages and programming environments for dynamic modeling, ways to test models, specialized tools to analyze objects, modeling nonlinear the statics and dynamics using computational intelligence systems. Identification and synthesis of dynamic objects.

Lab: Using scripts to modify and analyze the data, modeling of complex dynamic objects, joining the graphical programming techniques to the text based programs to create algorithms that generate a specific set of data, study the properties of objects

Basic bibliography:

1. Modelowanie układów dynamicznych, Stanisław Osowski, Warszawa 1997
2. Ćwiczenia z automatyki w Matlabie i simulinku, Jerzy Brzózka, Wydawnictwo EDU-MIKOM, Warszawa 1997

Additional bibliography:

1. Modelowanie Matematyczne Systemów, J. Gutenbaum, Wyd. 3 rozsz. i popr. Warszawa: Exit 2003
2. Język ANSI C, Kernighan B.W., Ritchie D.M., WNT, Warszawa, 2004
3. MATLAB The Language of Technical Computing, The Math Works, Inc., (wydanie od 2008r.)

Result of average student's workload

Activity	Time (working hours)

Student's workload

Source of workload	hours	ECTS
Total workload	140	6
Contact hours	75	3
Practical activities	60	2