

Course Unit Descriptor

Study Programme: Computing and Control Engineering			
Course Unit Title: System Modeling and Simulation			
Course Unit Code: 06 - E232			
Name of Lecturer(s): Erdeljan Aleksandar			
Type and Level of Studies: Bachelor level			
Course Status (compulsory/elective): compulsory			
Semester (winter/summer): winter			
Language of instruction: english			
Mode of course unit delivery (face-to-face/distance learning): face-to-face			
Number of ECTS Allocated: 8			
Prerequisites: none			
Course Aims: Mastering theoretical and practical basics of system modeling and simulation.			
Learning Outcomes: Acquired knowledge can be used in solving specific engineering problems, and also present a basis for further understanding of professional courses			
Syllabus: Place and role of modelling and simulation, practical applications. Theory of modelling and simulation. Mathematical models of time continuous systems. Examples of model forming: mechanical, thermal, hydrodynamic, electrical and electro-mechanical systems. Analogies between size and parameters. Electromechanical analogies. Model linearization. Simulation on analogue / hybrid computer. Simulation languages. Simulation on digital computer (Matlab/Simulink); Mathematical and simulation models of time discrete systems. System identification. Parameter identification. Example artificial neural networks.			
Required Reading: Relevant literature in English TBD			
Weekly Contact Hours: 2	Lectures: 2	Practical work: 0	
Teaching Methods: Lectures; Numerical – calculation practice. Computer practice. Laboratory practice. consultations. The examination is written and oral. The written part consists of at least four tasks, in order to pass the examination a students must successfully complete at least 50% of each task. The course material can be divided into two colloquia. The oral part of the examination is based on a list of examination questions. The colloquia, tests and examination are written. The written part is eliminating. The final grade is formed on the basis of colloquia, homework assignments, written and oral part of the examination.			
Knowledge Assessment (maximum of 100 points): 100			
Pre-exam obligations	points	Final exam	points
Group Assignment		Examination Assignment	
Exercises			
Test			
Test			

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.