



<b>The Faculty of:</b>	Faculty of Electrical and Computer Engineering
<b>Field of study:</b>	Automatic Control and Robotics
<b>Speciality:</b>	
<b>Study degree (BSc, MSc):</b>	MSc

### COURSE UNIT DESCRIPTION

<b>Course title:</b>	<b>Control of discrete event systems</b>
<b>Lecturer responsible for course:</b> Lesław Gniewek, PhD. <b>Contacts:</b> phone: (017) 86-515-36 <span style="float: right;"><b>e-mail:</b> <a href="mailto:lgniewek@prz-rzeszow.pl">lgniewek@prz-rzeszow.pl</a></span>	
<b>Department :</b> Department of Computer and Control Engineering	

Semester	Weekly load	Type of classes				Number of ECTS credits
		L Lectures	C Theoretical Classes	Lb Laboratory	P Project	
4	3	30	-	-	15	4

Course description	
<b>Lecture:</b>	Examples of discrete event systems. Sequential control. Queuing networks. Petri nets. Sequential Function Chart SFC. Methods for discrete simulations. Review of simulation languages of discrete processes. Simulation tools. Control structures of discrete systems. Control and management. Scheduling algorithms. Optimization models. Computational complexity. Accurate and approximate algorithms of optimization. One-machine problems. Flow problems.
<b>Classes:</b>	-
<b>Laboratory:</b>	-

**Project:**

Formulation of practical problems and solving them with simulation software.

**Objectives of the course**

Student should obtain basic knowledge about control systems modelling of discrete processes and their simulation.

**Examination method**

**Lecture:** Written solution of problems.

**Project:** Discussion about prepared project.

**Bibliography**

1. Skowronek M.: Modelowanie cyfrowe, Wyd. Polit. Śląskiej, 2008.
2. Hruz B. Zhou M.C.: Modeling and Control of Discrete-event Dynamic Systems with Petri Nets and Other Tool, Springer-Verlag London, 2007.
3. Barczyk J.: Automatyizacja procesów dyskretnych, Wyd. Polit. Warszawskiej, 2003
4. Smutnicki Cz.: Algorytmy szeregowania, EXIT, Warszawa 2002.
5. Błazewicz J., Cellary W., Słowiński R., Węglarz J.: Badania operacyjne dla informatyków, WNT, Warszawa, 1983.
6. Sawik T.: Badania operacyjne dla inżynierów zarządzania, Wyd. AGH, Kraków 1998.
7. Toczyłowski E.: Niektóre metody strukturalne optymalizacji do sterowania w dyskretnych systemach wytwarzania, WNT, Warszawa 1989.
8. Pawlak M.: Algorytmy ewolucyjne jako narzędzie harmonogramowania produkcji, PWN, Warszawa 1999.

<b>Lecturer signature</b>	
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