

Subject code	Credits
INFN4010	4

Course title in Lithuanian

PROCESŲ ANALIZĖ IR ATPAŽINIMAS

Course title in English

PROCESSES ANALYSIS AND RECOGNITION

Short course annotation in Lithuanian (up to 500 characters)

Atsitiktinių ir determinuotų procesų analizė, sintezė ir atpažinimas, kai šiems darbams naudojami kompiuteriai.

Short course annotation in English (up to 500 characters)

The goal of the study subject is to open for students knowledge, skills and ability to investigate processes analysis and recognition methods and to use processes analysis and recognition methods for practical application.

Prerequisites for entering the course

Probability theory, mathematical statistics, software design

Course aim

Random and deterministic processes analysis, synthesis and recognition, supported by computers applications.

Content

No	Content (topics)
1.	Determinate and random processes.
2.	Processes digitalization. Phenomena of processes discretization and quantization.
3.	Processes time characteristics estimation. Correlation analysis
4.	Processes frequency characteristics estimation. Spectral analysis.
5.	Autoregressive and autoregressive-moving average processes.
6.	Synthesis of digital processes
7.	Filtering of processes.
8.	FIR and IIR filters
9.	Processes detection in noise.
10.	Automatization of processes recognition.
11.	Linear recognizers.
12.	Bayes recognition systems.
13.	Arguments warping recognizers.
14.	Random processes recognition
15.	Detection of changes in properties of random processes

Distribution of workload for students (contact and independent work hours)

Lectures	45 hours
Laboratory work	15 hours
Individual students work	50 hours
Total:	110 hours

Structure of cumulative score and value of its constituent parts

Mid-term test (17%) and assessments of laboratory (practical) work (33%), exam (50%)

Recommended reference materials

No.	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	Self-study rooms	Other libraries
<i>Basic materials</i>						
1.	2006	John G. Proakis, Dimitris G. Maniatis. <i>Digital Signal Processing. Principles, Algorithms, and Applications.</i> Fourth Edition	Prentice-Hall, Inc.	1	1	
2.	2001	Richard O. Duda, Peter E. Hart, David G. Stork. <i>Pattern Classification</i>	John Wiley Sons Inc.	1	1	
<i>Supplementary materials</i>						
1.	2009	Sergios Theodoridis, Konstantinas	Elsevier Inc.			

		Koutroumbas. <i>Pattern Recognition</i>		
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Course programme designed by

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