



1.	<b>Course title</b>	Time series analysis and forecasting
2.	<b>Course code</b>	СИ-И-01
3.	<b>Semester</b>	9
4.	<b>Unit offering the course</b>	Faculty of Computer Science and Engineering
5.	<b>ECTS</b>	6
6.	<b>Goals of the study programme</b>	
	To introduce the students with statistical methods of machine learning for time series analysis and forecasting. Upon completion the course, the students are expected: to have deepened knowledge of the advanced techniques and methodologies of time series analysis and forecasting time series patterns; to be able to understand, analyse and model real world time series problems; to be able to conceptualize, realize and estimate the performance of systems for time series analysis and forecasting.	
7.	<b>Contents of the study programme</b>	
	Linear time series analysis, autocorrelated data analysis, stationary and non-stationary models, models with transfer functions, Box-Jenkins models (autoregressive, moving average, and autoregressive moving average models), analysis of seasonality and trend detection, volatility models, forecasting evaluation and diagnostics checking. Machine learning techniques for time series prediction based on decision trees, ensembles, linear regression, neural networks (deep learning).	