

Annex No. 3		Second Cycle Studies Course Programme			
1.	Course Title	Time series analysis			
2.	Code	STM 510			
3.	Study programme	Statistical methods for business and economics			
4.	Organizer of the study programme (university unit i.e. institute, chair, department)	Ss. Cyril and Methodius University in Skopje Faculty of Economics - Skopje			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	First year (winter semester)	7.	Number of ECTS credits	6
8.	Professor	Prof. Dragan Tevdovski, PhD			
9.	Preconditions for enrolment	Completed undergraduate level with at least 240 credits			
10.	Course Objectives (Competencies): After taking this course, students should be able to: <ol style="list-style-type: none"> 1. Use time series models in solving problems in the field of economics and finance; 2. Apply time series decomposition methods; 3. Use Autoregressive integrated models of moving averages; 4. Use Autoregressive conditional heteroskedastic models or generalized autoregressive conditional heteroskedastic models; 5. Use vector autoregressive models and the concept of cointegration. 				
11.	Course content: <ol style="list-style-type: none"> 1. Introduction 2. Decomposition of time series 3. Exponential smoothing 4. Time series and stochastic processes 4. Autoregressive integrated models of moving averages 5. Autoregressive conditional heteroscedastic models 6. Vector autoregressive models 				
12.	Learning methods: Lectures and laboratory hours, with active application of statistical software, as well as project works				
13.	Total hours	6 ECTS x 30 classes = 180 classes			
14.	Allocation of hours per activity	24+16+40+10+90= 225 classes			
15.	Types of teaching activates	15.1.	Lectures	24 classes	
		15.2.	Exercises (Seminars)	16 classes	
16.	Other types of activities	16.1.	Projects	40 classes	
		16.2.	Exercises	10 classes	
		16.3.	Home learning and tasks	90 classes	
17.	Grading method: 50+40+10=100 points				
	17.1.	Tests (Domain, Essay, Multiple choice exam, Case)	50 points		
	17.2.	Individual work/project	40 points		
	17.3.	Attendance and class participations	%		
18.	Grading scale	less than 50 points	5 (five) (F)		
		from 51 to 60 points	6 (six) (E)		

		from 61 to 70 points	7 (seven) (D)			
		from 71 to 80 points	8 (eight) (C)			
		from 81 to 90 points	9 (nine) (B)			
		from 91 to 100 points	10 (ten) (A)			
19.	Preconditions for taking the final exam	Realized activities from points 15 and 16				
20.	Language	Macedonian (or English)				
21.	Evaluation method	Internal evaluation and survey				
22.	Literature					
	22.1.	Compulsory literature				
		No.	Author	Title	Publisher	Year
		1.	Risteski, S., Tevdovski, D., and Trpkova, M.	<i>Introduction in the time series analysis</i>	University Ss. Cyril and Methodius	2012
		2.	Brockwell, P.J. and Davis, R.A	<i>Introduction to Time Series Analysis and Forecasting</i>	Springer-Verlag	2006
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
		1.	Box, G. E. P., Jenkins, G. M. and Reinsel, G	<i>Time Series Analysis: Forecasting and Control</i>	Prentice Hall	1994
		2.	Pena, D.	<i>Time Series Analysis</i>	Universidad Carlos III de Madrid	2008
		3.	Enders, W.	<i>Applied Econometric Time Series, 2nd ed.,</i>	Wiley	2004