Add. 3		Course program for the first, second and third degree of studies			
1.	Course title	Modeling and simulation of business processes			
2.	Code	213			
3.	Study group(s)	IEM			
4.	The organizer of the study program (unit, institute, department)	Faculty of Mechanical Engineering - Skopje, Ss. Cyril and Methodius University in Skopje			
5.	Level (first, second, third degree)	First			
6.	Academic year / semester	Winter	7.	Number of ECTS credits	6
8.	Professor	Prof. Robert Minovski			
9.	Preconditions for enrolling the course	Operations research 1 – signature			
10.	Purpose of the course program (competences): Defining business processed in one enterprise, modeling and simulation, their optimization; better understanding of the real processes; experimenting with parts of a system; determining the optimal solution for a given problem; using a suitable simulation software.				
11.	Contents of the course program: - Introduction to modeling and simulation, examples of simulation in practice - What is a conceptual model, why is it important and how does it function? - Data collection, analysis and random number generation - Model development, experimenting and simulation - Developing different scenarios - Implementation of the solution - Verification and validation - Example of System Dynamics modeling - Agent Based modeling and simulation				
12.	Study methods: Interactive teaching, Laboratory and/or in-class exercises, individual and/or team work on projects, self-study.				
13.	Total available time period	6 ECTS x 30 hours = 180 hours			
14.	Available time assessment	30 + 30 + 40 + 40 + 40 = 180 hours			
15.	Educational activity module	15.1.	Teaching lectures		30 hours
		15.2.	Practice, seminars, team work		30 hours
16.	Other activity module	16.1.	Project assignments		40 hours
		16.2.	Selfrunning assignments		40 hours
		16.3.	Home studying		40 hours
17.	Evaluation methods				
17.1.	Tests				50 points
17.2.	Projects				40 points
17.3.	Activity and participation				10 points
18.	Evaluation criteria (points and marks)		Under 50		5 (five) (F)
			51 - 60 points		6 (six) (E)
			61 - 70 points		7 (seven) (D)
			71 - 80 points		8 (eight) (C)
			81 - 90 points		9 (nine) (B)
			91 - 100 points		10 (ten) (A)
19.	Signature and final exam requirements	Realized activity 16.2			
20.	Language used for performing the teaching	Macedonian language			

21.	Method used for following the teaching quality	Surveys and other forms of continuous evaluation			

22.	References					
	22.1.	Main references				
		No.	Author	Title	Publisher	Year
		1.	Robert Minovski Bojan Jovanoski	Modeling and simulation, working materials	Faculty of Mechanical Engineering - Skopje	2007
		2.	Stewart Robinson	Simulation: The Practice of Model Development and Use	John Wiley & Sons	2004
		3.	Manuel Laguna Johan Marklund	Business Process Modeling, Simulation and Design	Prentice Hall	2004
	22.2.	Additional references				
		No.	Author	Title	Publisher	Year
		1.	Jerry Banks	Handbook of simulation	John Wiley & Sons	1998
		2.		Material from user manuals for the simulation software		