Add. 3		Course program for the first, second and third degree of studies			
1.	Course title	Process planning			
2.	Code	272			
3.	Study group(s)	PE, PInf			
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. Valentina Gecevska			
9.	Preconditions for enrolling the course	None			
10.	Purpose of the course program (competences): Preparation of technological documentation for products machining based on the analysis of product design documentation: qualification for manufacturing process planning by defining the production technologies, machining operations and actions, cutting tools selection, machine time calculation, machining cost estimation and productivity calculation. Capability of using advanced computer techniques for manufacturing process planning.				
11.	Contents of the course program: Learning of manufacturing process planning for product machining through analysis of product design documentation and techniques for technological documentation preparation with overview of applied production technologies, operations and actions selection, cutting tools selection, machines, cutting parameters calculations and selection, machining time and cost estimation, monitoring of processing quality and possible processing errors. Optimization of manufacturing process planning. Techno-economic analysis, productivity, efficiency, effectiveness. Group Technology notion. Computer aided process planning for manufacturing and integrated CAD/CAPP/CAM systems. Variation and generative CAPP systems, technology declarative knowledge. Application of computer aided manufacturing packages.				
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 + 30 + 30 + 60 = 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		20 hours
		16.3.	Home studying		60 hours
17.	Evaluation methods				
	17.1.	Tests			70 points
	17.2.	Projects			20 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 17.2
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.	V. Gecevska	Computer aided manufacturing process planning, internal edition	Faculty of Mechanical Engineering, Skopje, UKIM	2007
		2.	M. Kuzinovski	Group technology design	Faculty of Mechanical Engineering, Skopje, UKIM	2007
		3.	P. Scallan	Process Planning: the Design/Manufacture Interface	Pr.&Hall, USA	2008
	22.2.	Additional references				
		No.	Author	Title	Publisher	Year
		1.	B. Khosh	Process Planning Knowledge Representation	Mc.Hill Press, USA	2005
		2.	M. Curtis	Process Planning and CAPP	JWiley&Sons, USA	2007
		3.	T.C. Chang	Expert Process Planning for Manufacturing	Addison Wesley, USA	2001