

Add. 3		Course program for the first, second and third level (cycle) of studies			
1.	Course title	Cooling systems			
2.	Code	182			
3.	Study group(s)	TE			
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)	First			
6.	Academic year / semester	Summer	7.	ECTS credits	
8.	Instructor	Prof. Risto Ciconkov			
9.	Prerequisites	No			
10.	Course objectives (competences): Introduction to applications of refrigeration; Methods of cooling, freezing and food storage; Chilled air conditioning systems; Heat Pump.				
11.	Course content: Ideal cooling cycles, single-cooling cycles, multistage refrigeration cycles, Absorption refrigeration machinery, refrigeration compressors, condensers - types and calculations, Vaporizers - types and calculations				
12.	Study methods: Interactive lectures, exercises Auditory and / or laboratory, individual and / or team work of reference, self-learning.				
13.	Total hours	6 ECTS x 30 hours = 180 hours			
14.	Hours allocation per activity:	30 + 25 + 0 +30+65 = 180 hours			
15.	Lectures/Lab	15.1.	Lectures	30 hours	
		15.2.	Lab (student work)	25 hours	
16.	Project Work/Assignments	16.1.	Project assignments	0 hours	
		16.2.	Individual assignments	30 hours	
		16.3.	Self-study	65 hours	
17.	Points/Marks:				
	17.1.	Tests			90 points
	17.2.	Projects			0 points
	17.3.	Attendance			10 points
18.	Grading scale	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.	Prerequisites for taking the final exam				
20.	Language of Instruction				
21.	Course evaluation				
	Student questionnaire				

22.	Textbooks					
	22.1.	Instruction materials				
		No.	Author	Title	Publisher	Year
		1.	Risto Ciconkov	Cooling systems	UKIM	1996
		2.	Risto Ciconkov	Refrigeration – Solved Examples	MFS	2004
3.	Ilija Cerepnalkovski	Cooling technique	UKIM	1996		
22.2.	Supplemental Instruction Materials					

No.	Author	Title	Publisher	Year
1.		ASHRAE Handbook	ASHRAE-USA	