

#### REPUBLIC OF MACEDONIA

## "Ss. CYRIL AND METHODIUS" UNIVERSITY IN SKOPJE FACULTY OF MECHANICAL ENGENEERING - SKOPJE



#### **AN ELABORATE**

#### FOR ACCREDITATION OF STUDY PROGRAM, SECOND CYCLE OF UNIVERSITY ACADEMIC STUDIES (ONE YEAR STUDIES)

#### **STUDY PROGRAM**

"SUSTAINABLE ENERGY AND ENVIRONMENT"

#### NOMINATING INSTITUTION

"Ss. CYRIL AND METHODIUS" UNIVERSITY IN SKOPJE FACULTY OF MECHANICAL ENGINEERING - SKOPJE

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September 2002)

Proposed by: Faculty's Board Adopted by: Educational-scientific Council

#### **USED REGULATIONS**

This elaborate for accreditation of the study program for the second cycle studies in Sustainable energy and environment is made in accordance with the provisions of:

- Law on Higher Education ("Official gazette of the Republic of Macedonia" no. 35/2008, 103/2008, 26/2009, 83/2009, 99/2009, 115/210, 17/2011, 51/2011, 123/2012, 15/2013, 24/2013 and 41/2014),
- The Rulebook for the organization, operation, the way of making decision, methodology for evaluation and accreditation, accreditation standards and evaluation, and other issues related to the work of the Board for Accreditation and Evaluation of Higher Education ("Official Gazette of the Republic of Macedonia" "No. 151 / 2012)
- Statute of the University "Ss. Cyril and Methodius" in Skopje
- The Rulebook for adopting study programs ("University messenger" no. 140/2009)
- The Rulebook for the conditions, criteria and rules for enrollment and study of first and second cycle university studies ("University messenger" no. 141/2009)
- Regulation on the norms and standards for the establishment of higher education institutions and to perform higher education ("Official Gazette of the Republic of Macedonia" no. 103/2010 and 168/2010, Annex 2-Classification of scientific-research areas, fields and areas according to the International Frascati classification)
- Regulation on the National Framework for Higher Education qualifications ("Official Gazette of the Republic of Macedonia", br.154 / 2010),
- The Rulebook for obligatory components that study programs should own from his first, second and third cycle ("Official Gazette of the Republic of Macedonia" no. 154/2011 and 25/2011).

### 1. MAP OF THE HIGHER EDUCATION INSTITUTION

Name of the high education	"Ss. Cyril and Methodius" University in Skopje
institution	Faculty of Mechanical Engineering - Skopje
Address	P.O.Box 464, 1000 Skopje
Web page	http://www.mf.ukim.edu.mk/
Type of the high education	University / Faculty
institution (public, private-public	
non-profit, private non-profit,	
private profit)	
Data for the founder (private	National assembly of Republic of Macedonia
higher education institution)	
Data for the last accreditation	First cycle – year 2012
	Second cycle – year 2008, 2011, 2012, 2014
	Third cycle – year 2011
Study and research areas for	Research fields:
which accreditation has been	Machinery, Energy, Industrial Engineering and Management,
obtained	Quality Control, Materials, Environment, Transport,
	Transportation, Construction and Water Management,
	Regulation and management of technological processes
	Scientific research area:
	Technical and Technological Sciences
Faculty in the higher education	Faculty at "Ss. Cyril and Methodius" University in Skopje
institution	26 members (21 faculties and 5 institutes)
<u> </u>	,
Study programs that are realized	First cycle:
in the unit who requires extension	First cycle: a)Four years academic study programs (240 ECTS):
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering
in the unit who requires extension	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems
in the unit who requires extension of the activity by introducing new	First cycle: a)Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems b)Three years academic study programs (180 ECTS):
in the unit who requires extension of the activity by introducing new	First cycle: a) Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems b) Three years academic study programs (180 ECTS): Production informatics
in the unit who requires extension of the activity by introducing new	First cycle: a) Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems b) Three years academic study programs (180 ECTS): Production informatics Industrial design
in the unit who requires extension of the activity by introducing new	First cycle: a) Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems b) Three years academic study programs (180 ECTS): Production informatics
in the unit who requires extension of the activity by introducing new	First cycle: a) Four years academic study programs (240 ECTS): Production Engineering Transport, Mechanization and Logistics Hydraulic Engineering and Water Management Thermal Engineering Materials, Welding and Construction Engineering Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems b) Three years academic study programs (180 ECTS): Production informatics Industrial design

	Production Engineering	-		
	Transport and Logistics			
	Thermal Engineering			
Automatics and fluids engineering				
	Materials and Welding			
	Industrial Engineering and Management			
	Motor Vehicles			
	Sustainable energy and	lenvironment		
	Mechatronics			
	Product lifecycle mana	gement		
	Management and Qual	ity Control		
	b) Name of the study	program for	two year Ma	aster studies:
	Industrial design and m	narketing		
	Work Safety	_		
	Management and Qual	ity Control		
	Third cycle:			
	Study program in Macl	hinery		
	Study program Industri	ial engineerin	g and manage	ement
Data for international cooperation	tion The Faculty of Mechanical Engineering has international			
in the field of teaching, research	cooperation in the field	-		
and student mobility	mobility within the CEEPUS mobility program of teaching			
	and student staff, Erasr			, 0
	several agreements wit	h foreign uni	versities, info	rmation
	available at http:			
	//www.ukim.edu.mk/de			•
	ri.doc ) and other agree		ernational coo	peration.
Information about area for	1. Total area (gross are	*		
teaching and research	(space for teaching an	ıd yard)		
	9918 m <sup>2</sup>	,		
	2. Total teaching area (	net space)		
	$4840 \text{ m}^2$			
	3. Number of lecture t			of chairs
	lecture theaters with to			
	4. Number of classroor			airs
	24 classrooms with total			
	71	Number of	Area in	Total
	didactic space	premises	square	seating
	numeration	_	metres	capacity
	1. Lecture	2	426	480
	theaters			
	AMF	1	228	300
	225	1	198	180

	2.	Classrooms	25	1628,8	1113
		123	1	87	56
		124	1	87	64
		125	1	75	40
		224	1	111	80
		310	1	127	88
		311	1	76	48
		A1-1	1	88	88
		A1-2 left	1	38	38
		A1-2 right	1	43	28
		A1-3	1	43	28
		A1-5	1	43	28
		F1-2	1	54,5	22
		F2-4	1	60,4	32
		F2-5	1	42,3	18
		F2-6	1	53,3	22
		K2-6	1	44,7	28
		К2-7	1	44,7	25
		K2-15	1	44,7	20
		К3-9	1	80	40
		K3-1	1	55,1	36
		К3-18	1	55,1	36
Information about the aguinment	1 N	umbar of alassa	nome with	ommutos on	1 composites of

for teaching and research

Information about the equipment 1. Number of classrooms with computer and capacity of computer workplaces

10 classrooms with total 274 workplaces

no.	Types of	Number of	Area in	Total
	didactic space	premises	square	seating
	numeration		metres	capacity
1	Computer	10	391	274
	rooms			
	Room 309	1	75	25
	Room 312	1	75	25
	Web Lab			
	Computer	1	79	30
	center 1			
	Computer	1	84	44
	center 2			
	Room	1	47,4	24
	K1-2			
	Room	1	47,4	24
	K1-3			
	Room	1	48,3	40
	К2-8			

	Room K3-18	1	44,7	12
	Idea.lab			
	Room	1	35	22
	F1-1			
	Room	1	43	28
	A1-4			
	2. Number of labora	atories for pr	actical teaching	21
	3. Equipment for per Equipment value			
Number of students that a accreditation is obtained for	Number of students <b>450</b>			
Number of students (enrolled for the first time)	Number of regular s 209	students on p	ostgraduate stu	dies
Number of staff in teaching and	Structure of the tea	_	in teaching sci	ience, research,
research, scientific and teaching	teaching and associate titles			
positions	Full professoriate professoria		36 9	
	Assistant pro		10	
Number of staff with assistant	Structure of asso		teaching scie	ence, research,
positions	teaching and associ			
	Teaching As Research as		1:	2 7
	Research as	sistant		,
Teacher: students ratio (number	209/55 ≈ 4			
of students per teacher) for each	450/55 ≈ 8			
unit separately				
Internal mechanisms that ensure	Development	_		
quality control for the studies	<ul><li>Completion</li><li>Evaluation or</li></ul>		ng process	
	<ul><li>Evaluation of Graduation p</li></ul>			
	-		ching by studen	ts with surveys
	<ul> <li>Rating the quality of teaching by students with sur- at the end of each semester for each subject,</li> </ul>		•	
	• Evaluate the quality of the study program by t		•	
	students in the award of the diploma and			
	Other procedures relating to resources and logistics of the desired control of the des		and logistics of	
	the teaching  Report for the	•	σ of the educati	onal process of
				ng in Skopje,
	academic		year	2013/2014

	(http://www.mf.edu.mk/sites/default/files/files/IZVESH
	TAJ%20za%20samoevaluacija%20na%20MFS%20201
	3.pdf)
Frequency of self-evaluation	In order to provide conditions for continuous improvement of
process (every year, two years,	the quality of teaching (educational process) it is provided a
three years)	self-evaluation in every three years.
Data of last conducted external	Report for the subsequent evaluation of Ss Cyril and
evaluation of the institution	Methodius University in Skopje for the 2006-07 period to the
	2009-10 year. Issued by the European University Association,
	2011. New ongoing in 2014.
Other information that the	
institution wants to specify as an	
argument for its success	

# 1a. General qualification descriptors for second cycle one year university studies 60 ECTS at faculty of Mechanical engineering in accordance with the Regulation on the National Framework for higher education qualifications

Level in the national frame of higher education qualifications	Higher education	Level in the European frame of higher education qualifications
VIIA	Second cycle, university, Master academic studies, One year studies 60 ECTS	7

Knowledge and	Shows the knowledge and understanding in scientific research fields Machinery,		
understanding	Energy, Industrial Engineering and Management, Quality Control, Materials,		
	Environment, Transport, Construction and water management, regulation and		
	management of technological processes, and organizational sciences		
	(management) which builds on previous education and training acquired in the		
	first cycle of studies, including knowledge in the domain of theoretical, practical,		
	conceptual, comparative and critical perspectives in scientific fields and areas		
	under the appropriate methodology.		
Applying	May apply the acquired knowledge and understanding in the field of course		
knowledge and	programs in a way that shows a thorough, professional and competent approach		
understanding	to solving tasks in work or profession.		
	Shows the competence in identifying, analyzing and solving problems in related		
	scientific areas from the second cycle.		
	Is capable of finding and reliance arguments within the field of study of the		
	second cycle.		
Ability	Is capable of collecting, analyzing, evaluating and presenting information, ideas		
assessment	and concepts within the scientific and research realized activities, based on		

	relevant acquired data.			
	Making appropriate assessments taking into account the personal, social,			
	cientific research, development and ethical aspects.			
	Capable to evaluate theoretical and practical issues, to form opinion and explain			
	the reasons that lead to certain phenomena and choose an appropriate solution.			
Communication	Capable to establish contacts, to develop arguments and discuss with			
skills	professional and lay public for questions and information, ideas, problems, tasks			
	and solutions when deciding criteria and scope of the task is clearly defined and			
	set.			
	Undertakes personal responsibility for issues arising out as a result of team			
	work, the collective results.			
	Is capable of independent participation in a professional and comprehensive			
	approach, in terms of running a specific scientific and interdisciplinary			
	discussions.			
Learning skills	Take initiative to identify the needs for gaining further knowledge and learning			
	with a high degree of independence.			

# 1b. Specific qualification descriptors that determine learning outcomes for second cycle one year university studies 60 ECTS at study program Sustainable energy and environment in accordance with the Regulation on the National Framework for higher education qualifications

Knowledge and	Shows the thorough knowledge and understanding in scientific research
understanding	fields and areas acquired in the second cycle and relate to:
	Knowledge of energy sources, ways of transformation and its efficient
	<ul><li>Operation and maintenance of power plants</li></ul>
	<ul> <li>Regulations and testing of machines and power plants</li> </ul>
	<ul> <li>Technical control, supervision and inspection during the construction of power plants and systems</li> <li>Development of synapt reports on energy machinery and equipment</li> </ul>
	<ul> <li>Development of expert reports on energy machinery and equipment</li> <li>Knowledge of techniques, rules and measures to protect the environment</li> </ul>
Applying knowledge and understanding	Qualified for the study of complex tasks under consideration, showing elements of insight, and can apply knowledge and understanding in a way that indicates a professional approach to the job or profession.
	Shows the competence in identifying, analyzing and solving problems in
	related scientific fields studied in the second cycle.
	He/she is capable of finding and reliance arguments within the field and areas of study.

Ability assessment	Possesses the ability to collect, analyze, evaluate and present information, ideas, concepts of relevant data. Makes appropriate estimates taking into account the personal, social, scientific and ethical aspects.  Able to evaluate the theoretical and practical issues in the field of Sustainable energy and environment, to give arguments explaining the causes that give rise to certain phenomena, explaining the rules and choose an appropriate solution.			
Communication skills	Develops ability to establish communication and to discuss with the experts, and the lay public, for information, ideas, problems and solutions when deciding criteria and scope of the task is clearly defined.  Taking split, separate collective responsibility for results. Is capable of independent participation, professional approach, specific, scientific and interdisciplinary discussions.			
Learning skills	Take the initiative to identify the needs for further knowledge acquisition and learning with a high degree of independence, ie estimates of the need for continuous upgrading his knowledge and skills.			

2. Decision for adopting the study program by the Academic Council of Scientific unit (faculty of Mechanical engineering – Skopje), or school board of the Independent High School or the Scientific Council of the scientific institution.

The document is attached in Appendix 1 at the end of this elaborate.

3. Decision for adopting the study program from Rector's Office or the University Senate Council or the Council of scientific institution

The document is attached in Appendix 2 at the end of this elaborate.

#### 4. Scientific research field and area of the study program

Study program: Sustainable energy and environment, one year university studies

Scientific research area	Technical and technological sciences
Scientific research field	Mechanical Engineering, Energy, Environment
Scientific research range	Areas of these scientific research fields studied in this course programs according to the study program, as well as areas that correspond to the course programs studied in the study program, and belong in research fields that are not listed.

#### **5.** Type of the study program (academic or professional studies)

The type of studies of the Sustainable energy and environment study program in organization of the Faculty of Mechanical engineering in Skopje is academic, university studies.

#### **6.** Level of education (first or second cycle)

Sustainable energy and environment study program is organized by the Faculty of Mechanical engineering in Skopje is second cycle, one year studies with 60 ECTS.

#### 7. Purpose and justification for the study program in Sustainable energy and environment

The Faculty of Mechanical Engineering – Skopje at "Ss. Cyril and Methodius" University in Skopje is the leading institution in educating mechanical engineers in this country. In order to satisfy the requirements deriving from foreign investors, but also from domestic manufacturing companies, it is needed constantly educating personnel who have new interdisciplinary knowledge, and successfully responding to global trends. The Institute of Thermal technology and thermal power and the Institute for Hydraulic Engineering and Automation at faculty of Mechanical Engineering in Skopje, suggests study program which results from the previously derived comprehensive analysis and identification of needs and employment opportunities for university graduates in: Research and optimization of energy systems and installations, management and management of energy facilities and systems, energy management systems and systems design, construction and operation of power plants, design and construction of thermal machines and plants, technical inspection and control the design and construction of energy plants and systems, protection environment. Recognizing the basic profile competencies and acquired qualifications in motor vehicles this study program justifies expectations for analysis, exploration of energy sources, ways of transformation and its efficient use, design and construction of thermal machines and facilities, design and construction hydropower and hydrotechnical installations and machinery, management and exploitation of thermal and hydraulic plants and systems, regulations and testing of thermal and hydraulic machines and plants, technical control and inspection during construction of thermal and hydraulic plants and systems, expertise and expertise in the field thermal and hydraulic machines and plants, regulations and measures to protect the environment.

Another very important fact of such a study program in English are the provisions of the Law for Higher education which stipulates the minimum necessary study programs at higher education institution. The above reasons are showing the basic elements of social viability and the benefit of this study program and its sustainability in the future.

#### 8. Years and semester duration of the study program

The study program in Sustainable energy and environment is implemented for a period of one year, or two semesters.

#### 9. ECTS credits that the student acquires

With the completion of one year university academic studies of second cycle study program in Sustainable energy and environment, organized by the Faculty of Mechanical Engineering in Skopje, students shall acquire 60 ECTS.

## 10. Way of financing, and for private higher education institutions and scientific institutions, and proof of quality provided financial assurance for the study program

Covering the costs of the postgraduate study program in Sustainable energy and environment will be done by self-financing by the candidates. The amount, method of payment, and all other conditions are regulated by the conditions, rules and criteria for enrollment and study in the first and second cycle of studies at the University of "Ss. Cyril and Methodius" in Skopje. If the State participates in future, the amount of participation will be taken into account when defining the amount of funds for cofinancing.

#### 11. Enrollment conditions

The right to enroll in this study program have students that have completed a university, academic studies and have acquired 240 ECTS, and completed studies in accordance with the law of higher education before the introduction of the ECTS system according to the Bologna Declaration.

The enrollment of students in the second cycle of all study programs will be implemented in accordance with the provisions of the Competition for enrollment of students for the second cycle of "Ss.Cyril and Methodius" University in Skopje.

The teaching boards of the study program will decide for the fulfillment of the similarity of previously completed education.

#### 12. Information for continuing student's education

After completion of the second cycle of university academic studies at the Sustainable energy and environment study program at Faculty of Mechanical Engineering in Skopje, students can continue their education at the third cycle.

## 13. Fixed ratio between required and elective courses, with a list of required and a list of electives and defined way of selecting courses

The second cycle of university, academic studies at Sustainable energy and environment study program, is organized as a regular one-year (two-semester) study.

The study program is a continuation - deepening the knowledge acquired in the first cycle of university, academic studies for a period of four years.

There are four recognized modules at the second cycle of university studies

- 1. Module M4 Knowledge of mathematics and computer science
- 2. Module M5 Advanced levels of basic knowledge
- 3. Module M6 Advanced levels of specific knowledge
- 4. Module M7 Master thesis

One year of university second cycle studies is containing a number of course programs (subjects) that have a certain number of credits, as defined in the course programs.

The structure of annual academic, university studies, second cycle, Sustainable energy and environment study program, is given in Table 1, and the ratio between required and elective courses in Table 2.

Table 1.

No.	Course programs (subjects)	ECTS	Winter semester IX	Summer semester X		
1.	M4-1 Elective course from table 3	6	6			
2.	M5-1 Elective course from table 4	6	6			
3.	M5-2 Elective course from table 4	6	6			
4.	M5-3 Elective course from table 4	6	6			
5.	Elective from University list	6	6			
6.	M6-1 Elective course from table 5	6		6		
7.	M6-2 Elective course from table 5	6		6		
	M7 Master thesis	18		18		
Total	credit per semester:		30 30			
Total credit: 42 ECTS from courses + 18						
		from m	aster thesis =	= 60 ECTS		

Table 2.

No.	Study	Duration of the	Total	Number /	Number /	Number /
	Program -	studies	number/	percentage of	percentage	percentage
	subprogram	(years)/ECTS	percentage of	the compulsory	of the	of the
		-	the study	courses by	elective	elective
			program	module (60%)	courses,	courses,
					from study	from
					program	University
					(30%)	list (10%)
1.	Sustainable	1 year	7	0	6	1
	Energy and	60 ECTS	100%	0 %	86 %	14 %
	Environment					

Table 3. Elective courses from faculty module M4, knowledge of mathematics and computer science

No.	Course programs (subjects) –one course is elected	ECTS
1.	Selected topics in Applied Mathematics	6
2.	Selected topics in informatics	6
3.	Probability and Statistics	6

Table 4. Elective courses from faculty module M5, advanced levels of basic knowledge

No.	Course programs (subjects) - three courses are elected	ECTS
1.	Modern thermal plants	6
2.	Advanced thermodynamics – selected chapters	6
3.	Transport and the environment	6
4.	Fluid mechanics in environmental engineering	6
5.	Environmental measurement methods and monitoring systems	6
6.	Environmental systems analysis	6
7.	An introduction to eco-innovations	6

Table 5. Elective courses from faculty module M6, advanced levels of specific knowledge

No.	Course programs (subjects) - two courses are elected	ECTS
1.	Non-conventional power plants	6
2.	Water and waste water treatment	6
3.	Energy efficiency	6
4.	Eco-engines	6
5.	Design of fluid conveying and hydro power system	6
6.	Waste management	6
7.	Energy vs. sustainable development: Concepts and aspects	6
8.	Automation of environmental processes	6
9.	Clean fossil and alternative fuels energy	6
10.	Experts in teamwork	6

The structure of the study program is providing a free course from the list of university courses proposed by each unit of the university, especially to meet the elective 10% under Article 99 of the Law on Higher Education from which students can choose only one course program.

Free list of university course programs are supplemented by all accredited courses from the second cycle (compulsory and elective) at the faculty of Mechanical Engineering in Skopje.

According to the Law on Higher Education the courses are provided in Macedonian language, and courses of certain programs can be conducted in English, to meet the provision in Article 99 of the Law on Higher Education "window for mobility".

#### 14. Information about provided space for the realization of the study program

Postgraduate studies are organized as full-time study with teaching. The Faculty of Mechanical Engineering has sufficient space for the implementation of teaching the first, second and third cycle, which is included in the map of higher education institution. The practical part of teaching is mostly performed in the laboratories of the faculty of Mechanical Engineering, which are also listed in the map of higher education institution.

The course programs envisages clinical teaching as well as recommended in the legislation, which is carried out in the workplace, the economy or the faculty by hiring prominent experts from practice.

#### 15. List of equipment provided for the realization of the study program

The faculty of Mechanical Engineering - Skopje has the following laboratory equipment which is used for teaching:

- Spectrometer System for Field Measurements S::CAN Austria, http://www.s-can.at/
- WTW Wissenschaftlich-Technische Werkstätten GmbH Germany, http://www.wtw.de
- Portable Data Acquisition System (PDAS) for Ambient vibration measurements
- Spectrophotometers for Laboratory Measurements, Hach-Lange Gmbh Germany, http://shop.hachlange.com
- Portable Radar Flow Meter with Automatic Water Sampler; Hach-Lange Gmbh Germany, http://shop.hach-lange.com
- Ammonia, Nitrate, Chlorine, Potassium, Temperature and pH Ion-Selective Measurement System;
- Nadler Chemische Analysentechnik AG Switzerland, http://www.nadler.ch/
- Dissolved Oxygen and Conductivity Measurement Equipment; S::CAN Austria, http://www.s-can.at/
- Devices for chemical preparation of water,
- Handheld devices for measuring water quality Eureka Manta Multiprobe Logger 3.0, Cond Graphite,
- 4 electrode, Amphibian Display Package;
- Ultrasonic flowmeter EESIFLO PORTALOK 7S;
- Hiperspectral process photometer spectro::lyser:
- Data acquisition system con::stat industrial process control terminal (900/1800 MHz GSM);
- Laboratory testing equipment, Laboratory Conductivity Meter, Laboratory Oxygen Meter;
- GPS Global Positioning Unit, One Frequence R3 GPS system (Base+rover) with post-processing software Trimble Recon;
- Zeta Meter 3.0 + System with Microscope Unitron FSB 4c;

- Hydraulic system for measurements of small turbine;
- System for laboratory tests of fluidized bed combustion (defining the flow and the temperature in the
- combustion of solid fuels in fluidized bed);
- Portable pressure sensor;
- sensors for fluid pressure
- force sensor
- sensors (of different types) to measure temperature;
- A device for measuring relative humidity and speed;
- Chamber for air conditioning on a certain temperature and relative humidity;
- Chamber of examination and testing of thermal devices;
- Instruments for measuring heat.

16. Course programs information in accordance with Article 4 of the Regulation for obligatory components that should own the study programs from the first, second and third cycle (Official Gazzete of the Republic of Macedonia" no. 21/2011) and the Regulation for changes and supplement of the Regulation for obligatory components that should own the study programs from the first, second and third cycle ("Official Gazzete of the Republic of Macedonia" no. 154/2011)

Add	1.3	Course program for th	ne seco	nd level (second	cyc	le - postgraduate) (	of studies
1.	Course title		5	Selected topics in	app	lied mathematics	
2.	Code		1	M4SEE01			
3.	Study group	(s)	S	SEE			
4.	The organize	er of the study program (u	nit, '	Ss. Cyril and Mo	etho	dius" University in S	Skopje,
	institute, dep	partment)	F	Faculty of Mecha	nica	l Engineering - Sko	pje
5.	Level (first,	second, third degree)	5	Second			
6.	Academic ye	ear / semester	7	V / winter	7.	ECTS credits	6
8.	Professor(s)		I	Prof. dr. Aleksa N	Malc	heski	
			A	Ass. Prof. dr. Boj	an P	rangoski	
9.	Prerequisites	s for enrolling the course	1	None			
10.	Course object	ctives (competences):					
		to selected topics in nume	erical a	nalysis, optimiza	tion,	linear algebra, diffe	erential
		d complex analysis.					
11.	Course conto						
		olems in numerical mather					complex
		plication of software tools					
12.	Study metho	ods: lectures, lab, project a	ssignm				
13.	Total hours			6 ECTS x 30 =	180	hours	
14.	Hours alloca	tion per activity:		30+15+40+30+65 = 180  hours			
15.	Lectures/Lal	b	15.1.	Lectures (15 w		x 2)	30 hours
			15.2.	Lab (student w	ork)		15 hours

16.	Project	Project Work/Assignments			Project assignmen	nts	40 hours
				16.2.	Individual assignm	nents	30 hours
				16.3.	Self-study		65 hours
17.	Points/	Marks	•				1
	17.1.	H	Exams				40
	17.2.	17.2. Projects				50	
	17.3.	A	Attendance				10
18.	Gradin	g scale	2)		Under	50	5 (five) (F)
	51 - 60 points			nts	6 (six) (E)		
					61 - 70 poi		7 (seven) (D)
					71 - 80 poi		8 (eight) (C)
					81 - 90 poi		9 (nine) (B)
					91 - 100 poi	nts	10 (ten) (A)
19.	Prerequisites for taking the final exam				Activity 16.1		
20.	Langua	ige			English		
21.	Course	evalua	ation		Student questionnair	re	
22.	Textbo	oks					
	22.1	Instr	ruction materials				
		No.	Author		Title	Publisher	Year
		1.	R. Fletcher		Practical methods of optimization	John Willey and Sons	2006
		2.	Alhfors L.		Complex analysis	McGraw Hill	2009
		3.	S. Axler		Linear Algebra Done Right	Springer	2004
	22.2 Supplemental Instruction Materials						
		No.	Author		Title	Publisher	Year
		1.	A. Ralston, P. Rabinowi		A First Course in Numerical Analysis	Dover Publications	2001

Add	1. 3 Course program for the s	econd level (second	d cyc	cle - postgraduate)	of studies	
1.	Course title	Selected topics in	Selected topics in informatics			
2.	Code	1M4SEE02				
3.	Study group(s)	SEE				
4.	The organizer of the study program (unit,	"Ss. Cyril and Methodius" University in Skopje,			Skopje,	
	institute, department)	Faculty of Mechanical Engineering – Skopje			pje	
5.	Level (first, second, third degree)	Second				
6.	Academic year / semester	V / winter	7.	ECTS credits	6	

8.	Profess	or(s)			Prof. Dr. Dushan Cha			
9.	Drorogu	icitoc	for enrolling the course		Ass. Prof. dr. Emilija None	Celakoska		
10.			ives (competences):		IVOIIC			
10.			se of computer databases	or use	of specific software	for engineering	applications	
11.	Course							
	Introdu	ction o	of basic topics in compute	er data	bases. Including: rela	tional databases	s, query	
			ign and normalization and					
		•	, the students can choose		-	er software for e	engineering	
10			ccording to their interests					
12.	•	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments						
12			ect assignments, selfrunni	ng ass		) 1		
13. 14.	Total he		ion nor activity:		6 ECTS x 30 = 180 30+30+60+60=180			
15.	Lecture		ion per activity:	15.1.			30 hours	
13.	Lecture	S/Lau		15.1.	,	,	30 Hours /	
16.	Project	Work	/Assignments	16.1.			30	
10.	Troject	W OIK						
				16.2.	Individual assignm	ents	60	
				16.3.	Self-study		60	
17.	Points/I	Marks	:					
	17.1.	E	Exams				50	
	17.2.	F	Projects				50	
	17.3.	A	Attendance				/	
18.	Grading	g scale	<b>,</b>		Under 5		5 (five) (F)	
					51 - 60 points		6 (six) (E)	
					61 - 70 poin		7 (seven) (D)	
					71 - 80 poin		8 (eight) (C)	
					81 - 90 poin		9 (nine) (B)	
19.	Draragu	icitac	for taking the final exam		91 - 100 poin	its	10 (ten) (A)	
20.	Langua		Tot taking the imal exam		English			
21.	Course		ation		Student questionnaire	<u> </u>		
22.	Textboo	oks		<u> </u>				
	22.1		uction materials					
		No.	Author		Title	Publisher	Year	
		1.	Oppel A.		Database	McGrow-	2004	
					Demystified	Hill		
		2.	Gilat A.		MATLAB An	John Wiley	2011	
					Introduction with	& Sons		
					Applications			

22.2	Supp	Supplemental Instruction Materials						
	No. Author Title Publisher Year							
	1.	Cormen T.H., Leiserson	Introduction to	The MIT	2009			
		C.E., Rivest R.L., Stein C.	Algorithms, 3rd	Press				
			edition					

Add	l. 3	Course program for	the se	econd level (second cyc	cle - post	graduate)	of studies	
1.	Course ti	tle		Probability and statistics	8			
2.	Code			1M4SEE03				
3.	Study gro			SEE				
4.	_	nizer of the study program		'Ss. Cyril and Methodiu				
		titute, department)		Faculty of Mechanical I	Engineeri	ng - Skopje	e	
5.		rst, second, third)		Second				
6.		c year / semester		V / winter 7. ECTS credits 6				
8.	Professor			Prof. dr. Nikola Tunesk	<u> </u>			
9.	Prerequis		1	None				
10.	Introduct	bjectives (competences): iion to the probability and and statistical estimates.	techni	iques for probability cal	culations	s. Usage of	elements of	
11.	Combinatory. Theory of probability: classical approach, conditional probability, Bayes formula. Random variables, limit theorems. Elements of statistics: parameter estimates, interval estimates, testing hypothesis.							
12.	Study me	ethods: lectures, lab, projec	ct assi	gnments, individual ass	ignments	s, self-stud	у.	
13.	Total hou			$6 \text{ ECTS } \times 30 = 180$				
14.		location per activity:	1	30+15+40+30+65 = 180  hours				
15.	Lectures	/Lab	15.1	`			30 hours	
			15.2	,			15 hours	
16.	Project V	Vork/Assignments	16.1	J &			40 hours	
			16.2	. Individual assignm	ents		30 hours	
			16.3	Self-study			65 hours	
17.	Points/M	Tarks:		1	I			
	17.1.	Exams					40	
	17.2.	Projects					50	
	17.3.	Attendance					10	
18.	Grading	scale		Under 50		5 (five) (F)		
				51 - 60 points		6 (six) (E)		
				61 - 70 point	S		7 (seven) (D)	

				71 - 80 point	is	8 (eight) (C)		
				81 - 90 point		9 (nine) (B)		
				91 - 100 point	S	10 (ten) (A)		
19.	Prerec	quisites 1	for taking the final exam	Activity 16.1				
20.	Langu	iage		English				
21.	Cours	e evalua	ntion	Student questionnaire				
22.	Textb	ooks						
	22.1.	Instruc	ction materials					
		No.	Author	Title	Publisher	Year		
	1. Walpole R.E., Myers R.H., Myers S.L., Ye K.  2. J.P. Marques de Sa		R.H., Myers S.L., Ye	Probability & Statistics for Engineering & Scientists	Prentice Hall	2007		
			Applied Statistics using SPSS, STATISTICA and MATLAB	Springer- Verlag	2003			
	22.2.	Supple	mental Instruction Materi	l als				
	No. Author		Author	Title	Publisher	Year		
		1.	Mendenhal W., Sincich T.	Statistics for Engineering and the Sciences	Maxwel Macmillan	1992		

Add	. 3 Course program for the	e second level (secon	d cy	cle - postgraduate) of	studies				
1.	Course title	Modern thermal por	wer p	olants					
2.	Code	1M5SEE01							
3.	Study group(s)	SEE							
4.	The organizer of the study program	"Ss. Cyril and Meth	odiu	s" University in Skopj	e,				
	(unit, institute, department)	Faculty of Mechani	cal E	Engineering – Skopje	·				
5.	Level (first, second, third)	Second		-					
6.	Academic year / semester	V / Winter	7.	ECTS credits	6				
8.	Professor	Prof. dr. Slave Arm	ensk	i					
9.	Prerequisites	None							
10.	Course objectives (competences):								
	Profound knowledge of modern facilities	es that analyze, desig	n, an	alysis and selection of					
	advanced equipment, technical control,	supervision and insp	ectio	n during construction,					
	exploitation and maintenance, environn	nental protection							
11.	Course content:								
	Modernization of plants with increased energy efficiency; combined cycle cogeneration plants;								
	plants with triple loop-three generation;				ces;				
	efficiency coefficient; equipment; econ-	omic and environmen	ntal a	spects					

12.	Study n	nethod	ds:				
13.	Total ho				$6 \text{ ECTS } \times 30 = 18$	30 hours	
14.	Hours a	llocat	ion per activity:		30+45+40+30+35	5= 180 hours	
15.	Lecture	s/Lab		15.1.	Lectures (15 weel	k x 2)	30 hours
				15.2.	. Lab (student worl	k)	45 hours
16.	Project	Work	/Assignments	16.1.	Project assignment	nts	40 hours
				16.2.	. Individual assign	ments	30 hours
				16.3.	. Self-study		35 hours
17.	Points/I	Marks	:			<b>'</b>	
	17.1.	]	Tests				50 points
	17.2.	F	Projects				50 points
	17.3.	A	Attendance				-
18.	Grading	g scale	2		Unde	r 50	5 (five) (F)
					51 - 60 po	oints	6 (six) (E)
					61 - 70 po	oints	7 (seven) (D)
				oints			
				oints	9 (nine) (B)		
	91 - 100 points						10 (ten) (A)
19.			for taking the final exan		Accomplished 16.1	and 16.2	
20.	Langua				English		
21.	Course		ation		Student questionnai	re	
22.	Textboo						
		Instr	ruction materials				
		No.	Author		Title	Publisher	Year
		1.	L. Drbal et al.		Power Plant	Black&Veatch,	1996
					Engineering	Chapman&Haal,	
	22.1.	2.	Klas Jonhagen:		"Modern Thermal	New York Lund University	January,
		۷.	Mas Johnagen.		Power Plant-	Lund Omversity	2011,
					Aspects on		Sweden
					Modelling and		
				Evaluation"			
			plemental Instruction erials				
	22.2.	No.	Author		Title	Publisher	Year
	<i>LL</i> . <i>L</i> .	1.	B.W.Wilkinson,		Cogeneration of	CRC Press, Inc,	
			R.W.Barnes		Electricity and	Boca Raton,	
					Useful Heat	Florida	

Add	1. 3	Course program for the sec	ond level (second	cycle	e - postgraduate) of	studies	
1.	Course title	e	Advanced thermodynamics - selected chapters				
2.	Code		1M5SEE02				
3.	Study grou	p(s)	SEE	SEE			
4.	The organi	zer of the study program (unit,	"Ss. Cyril and Methodius" University in Skopje,				
	institute, de	epartment)	Faculty of Mechanical Engineering - Skopje				
5.	Level (first	, second, third degree)	Second				
6.	Academic	year / semester	V / winter	7.	ECTS credits	6	
8.	Professor		Assoc. prof. Risto Filkoski				
9.	Prerequisit	es for enrolling the course	None				

#### 10. | Course objectives (competences):

To obtain knowledge of the advanced topics in applied thermodynamics and heat transfer related to mechanical engineering, with emphasize to thermal power engineering and environmental protection. The course includes additional thermodynamics relations, including advanced thermodynamic cycles, two- and three-component systems and their applications. The course also covers advanced topics in conduction, convection and radiation heat transfer and related industrial applications.

Advanced methods of modelling techniques of fluid flow, turbulence, combustion and heat transfer in engineering applications, with emphasize on numerical modelling. Engineering and scientific approach to the advanced techniques of modelling and simulation of thermal processes. Ability to create and use software applications for design, energy efficiency analysis and operating problems solution of steady-state and dynamic systems in the field of thermal and power engineering.

#### 11. Course content:

Thermodynamics of irreversible processes. Second law of the classical thermodynamics and irreversible processes. Entropy. Thermodynamic potentials, Helmholtz energy, Gibbs energy, chemical potential, Maxwell relations. Multi-phase systems, phase changes. Chemical equilibrium. Energy and exergy analysis of thermal engineering systems

Real gases, Van der Waals equation of state of real gases, equation of corresponding states and other equations. Liquid state. Internal pressure, surface stress and capillary phenomenon.

Third law of classical thermodynamics, extensivity, entropy. Flow of compressible fluids.

Mixtures and mixing. Binary solutions. Thermodynamics of two- and three component systems. Thermo-mechanical transformations. Thermodynamic processes in thermal machines, facilities and plants. Advanced thermodynamic cycles.

Thermodynamic efficiency of the processes, maximal work, maximal technical work - exergy, exergy balance, energy analysis, Grassmann diagram for exergy flow

Mass and energy balance of combustion process. Kinetics and dynamics of the combustion process of solid, liquid and gaseous fuels. Heat transfer topics and efficiency. Theory of similarity. Heat transfer in different applications in power engineering and process industry. Selected chapters on fluid flow, turbulence, combustion and heat transfer processes. Computational fluid dynamics (CFD) and computational thermal analysis (CTA). The finite

volume method. Discretisation of the governing equations and numerical solution. Numerical domain, object geometry, numerical grid and its evaluation. Modelling of flow processes with

12.	Convector thermal modelli CFD tector per formation Study n	Convection. Radiation energy transfer. Equation for radiation energy transfer. Modelling of thermal radiation heat transfer by different methods. Time-dependant flow modelling, modelling of transitional processes.  CFD technique as a tool for modelling operation of burners, combustors, combustion chambers, boiler plants, industrial furnaces (ovens), other industrial facilities and devices. Modelling of the formation and reduction of air pollutants (CO, NO <sub>x</sub> , SO <sub>2</sub> , etc.).  Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments								
13.	Total ho	ours			6 ECTS x 30 hour	rs = 180  hours				
14.	Hours a	llocat	ion per activity:		30+30+35+15+60	0 = 180 hours				
15.	Lecture	s/Lab		15.1.	Lectures (15 week	( x 2)	30 hours			
				15.2.	`		30 hours			
16.	Project	Work	/Assignments	16.1.	Project assignmen	nts	35 hours			
				16.2.	Individual assign	nents	15 hours			
	16.3. Self-stu				Self-study		60 hours			
17.	Points/Marks:									
	17.1.	H	Exams				50 points			
	17.2.	F	Projects				45 points			
	17.3.	A	Attendance				5 points			
18.	Grading	g scale			Under		5 (five) (F)			
					51 - 60 points		6 (six) (E)			
					61 - 70 points		7 (seven) (D)			
					71 - 80 poi		8 (eight) (C)			
				-	81 - 90 poi		9 (nine) (B)			
19.	Drorogu	icitoc	for taking the final exem		91 - 100 poi Activities 15.2 and		10 (ten) (A)			
20.	Langua		for taking the final exam		English	10.1				
21.	Course		ation		Student questionnair	re				
22.	Textboo				1					
	22.1		uction materials							
		No.	Author		Title	Publisher	Year			
		1.	K. Annamalai, I. K. Pui	ri	Advanced	CRC Press,	2011			
		1.	M. A. Jog,		Thermodynamics Engineering	2nd edition	2011			
		2.	I. D. Holclajtner		General course of	ZUNS,	2000			
			Antunovic		physical chemistry	University in Belgrade				

	3.	Baukal C.E. et al.	CFD in Industrial	CRC Press	2001
			Combustion		
22.2	Supp	plemental Instruction			
Materials					
	No.	Author	Title	Publisher	Year
	1.	Baukal C.E. et al.	Heat Transfer in	CRC Press	2000
			Industrial		
			Combustion		
	2.	Filkoski R.	Modelling of	Faculty of	2011
			energy conversion	Mechanical	
			processes	Eng., Skopje	
	3.	Petrovski K.	Termodinamics,		1999
			3rd edition		

Add	1. 3	Course program for tl	ne secon	d level (second o	ycle	- postgraduate) of	studies		
1.	Course ti	tle	٢	Fransport and the	env	ironment			
2.	Code		,	1M5SEE03					
3.	Study gro	oup(s)	]	EE					
4.	The organ	nizer of the study program (	(unit, '	Ss. Cyril and Mo	etho	dius" University in S	Skopje,		
	institute,	department)	]	Faculty of Mecha	ınica	l Engineering - Sko	pje		
5.	Level (fin	est, second, third degree)	,	Second			_		
6.		c year / semester		V / winter	7.	ECTS credits	6		
8.	Professor	•	]	Prof.d-r Mile Din	nitro	vski			
				Doc.d-r Dame Di	mitr	ovski			
9.		sites for enrolling the course		Vone					
10.		bjectives (competences): Ar							
		es and technologies for redu		exhaust emission	s. C	alculation of real cy	cles,		
		g performance and pollution							
11.		ontent: Learning the real pro							
	_	e, pollutant behavior after c	ombustio	on, technologies	for p	ollution reduction in	n vehicles		
	etc.								
12.		ethods: Interactive lectures,			y pra	ctice, selfrunning ar	nd/or team		
10		project assignments, selfrun	ning assi	<u> </u>	100	. 1			
13.	Total hou			6 ECTS x 30 =					
14.		ocation per activity:	1	30+30+30+30-					
15.	Lectures/	Lab	15.1.	Lectures (15we			30 hours		
			15.2.	`			30 hours		
16.	Project W	Vork/Assignments	16.1.	Project assignm	nent	S	30 hours		
			16.2.	Individual assi	gnm	ents	30 hours		
			16.3.	Self-study			60 hours		
17.	Points/M	arks:		1		l .			

	17.1.	E	Exams			50		
	17.2.	P	Projects			45		
	17.3.	A	Attendance			5		
18.	Gradin	g scale		Under	50	5 (five) (F)		
				51 - 60 poi	nts	6 (six) (E)		
				61 - 70 poi	nts	7 (seven) (D)		
				71 - 80 points		8 (eight) (C)		
				81 - 90 poi		9 (nine) (B)		
				91 - 100 poi	nts	10 (ten) (A)		
19.			for taking the final exam	Presented projects				
20.	Langua	ge of I	Instruction	Macedonian				
21.	Course	evalua	ntion	Student questionnair	re			
22.	Textbo	oks						
	22.1	Instr	uction materials					
		No.	Author	Title	Publisher	Year		
		1.	Mile Dimitrovski, Dame Dimitrovski	ECOGAS software	Internal issue	2010		
		2.	Jeremy Colls	Air polution	ISBN 0203- 4762-6	2007		
	22.2	Supp Mate	lemental Instruction crials					
		No.	Author	Title	Publisher	Year		
	1.		Handbook of Air Pollution from Internal Combustion Engines: Pollutant Formation and Control	Eran Sher	Academic Press	1998		
		2.	Transport and the environment	R. E. Hester, R. M. Harrison	RS.C advanced chenical science	2006		

Add	1. 3 Course program for the sec	cond level (second cycle - postgraduate) of studies					
1.	Course title	Fluid Mechanics in Env	Fluid Mechanics in Environmental Engineering				
2.	Code	1M5SEE04					
3.	Study group(s)	SEE					
4.	The organizer of the study program (unit,	"Ss. Cyril and Methodiu	ıs" U	niversity in S	kopje,		
	institute, department)	Faculty of Mechanical E	Engin	eering - Skop	je		
5.	Level (first, second, third)	Second					
6.	Academic year / semester	V / winter 7. ECTS					
				credits			

8.	Profes	sor(s)				dr. Valentino Stojko			
9.	Duonoo	misitas			None	oc. prof. dr. Zoran Ma	arkov		
10.		uisites	ves (competences):		None	<del>2</del>			
10.			nalyze fluid flows in	environr	mental e	engineering Simulate	e flows ar	nd inves	stigate
			boundary layer probl		iiciitai C	ingineering, billialaa	z mows an	id iii ve.	stigate
11.		e content							
			id properties, viscous	s flow an	alysis, 1	turbulence, boundary	layers, c	omputa	ational
		lynamics			<b>3</b>	,	•	1	
12.	Study	methods	: lectures, lab, project	t assignn	nents, in	dividual assignment	s, self-stu	ıdy.	
13.	Total l					6 ECTS x 30 hours			
14.			on per activity:			30 + 15 + 40 + 30			
15.	Lectur	es/Lab			15.1.	Lectures (15weeks			0 hours
					15.2.	Lab (student work)			5 hours
16.	Projec	t Work/A	Assignments		16.1.	Project assignment	S	4	0 hours
				1	16.2.	Individual assignm	ents	3	0 hours
	16.3.					Self-study		6	55 hours
17.	Points	/Marks:		l .					
	17.1.	Exams							40
	17.2.	Projects	3						50
	17.3.	Attenda	nce						10
18.	Gradin	ng scale				Unde	er 50	5 (f	rive) (F)
						51 - 60 p	oints	6 (six) (E)	
						61 - 70 points 7 (seven) (			
							80 points 8 (eight) (C)		
						81 - 90 p			ine) (B)
10	D	• • • •	. 1		<b>A</b>	91 - 100 p	oints	10 (	ten) (A)
19.			or taking the final exa	ım		ty 16.1			
	Langu		·		Englis				
21.	Textbo	e evaluat	1011		Studer	nt questionnaire			
22.	22.1.		ion materials						
	<i>LL</i> .1.					T141 -	D 11'	-1	<b>3</b> 7
		No.	Author	<b>.</b>		Title	Publis	sner	Year
		1.	Rubin H.,	Enviror	nmental	Fluid Mechanics	Marcel	т	2001
		2	Atkinson J.				Dekker		2007
		2.	Hirsch C.			nputation of aternal Flows: The	Butterw Heinem		2007
						of Computational	пешет	allii	
	Fluid Dynamics								

22.2.	Supple	upplemental Instruction Materials								
	No.	To. Author Title Publisher Year								
	1.	White F. M.	Fluid Mechanics	Mc-Graw Hill	2008					

Add	d. 3 Course program for	the second lo	evel (second	cycle - postgra	duate) of studies					
1.	Course title	Env	vironmental N	Measurement m	ethods and					
		Mo	Monitoring Systems							
2.	Code	1M	1M5SEE05							
3.	Study group(s)	SEI	Е							
4.	The organizer of the study program (	(unit, "Ss	. Cyril and M	lethodius" Univ	ersity in Skopje,					
	institute, department)	Fac	ulty of Mech	anical Engineer	ing - Skopje					
5.	Level (first, second, third)	Sec	ond							
6.	Academic year / semester	V /	winter	7.	ECTS 6 credits					
8.	Professor(s)	Pro	f. dr. Valenti	no Stojkovski						
		Ass	s. Prof dr. Da	rko Babunski						
9.	Prerequisites	No	ne							
10.	Course objectives (competences):									
	Learn to implement of the dimensional analysis and theory of similarity, to implement									
	of the measurement instrumentation, accuracy of measurements, presentation of the results,									
	Methods and instrumentation for the pressure, flow direction and velocity, discharge,									
	temperature, movement, force and power.									
	Data acquisition hardware & software									
	Software packages for monitoring ar	nd control of	environment	al engineering p	processes.					
11.	Course content:									
	Implementation dimensional analysis	-		•	• -					
	of the measurement instrumentation									
	results. Pressure measurement. Me				•					
	Discharge measurement. Temperatu			ement of concer	ntration and particle					
	size distribution of granular material	-								
	Analysis of the advantages and									
	Comparison of sensors and instru			_						
	Analysis of the systems for continuo									
	Monitoring of municipal and indust				sis and techniques					
	Automatic monitoring stations for m				• • • •					
	Air monitoring: air pollution monit		esting equipr	nent, ambient a	air monitoring, and					
10	automatic air pollution monitoring sy		. 1 1		C . 1					
12.	Study methods: lectures, lab, project	assignments			r-study.					
13.	Total hours			0 = 180  hours						
14.	Hours allocation per activity:	1454	+	$\frac{30+65=180 \text{ ho}}{5}$						
15.	Lectures/Lab	15.1.	· · · · · · · · · · · · · · · · · · ·	5 weeks x 2)	30 hours					
4 -		15.2.	Lab (studer		15 hours					
16.	Project Work/Assignments	16.1.	Project assi	gnments	40 hours					
			1							

				16.2.	Individual assi	gnments	30 hours				
				16.3.	Self-study		65 hours				
17.	Points	/Mark	S:								
	17.1.	E	Exams				40				
	17.2.	F	Projects				50				
	17.3.	A	Attendance				10				
18.	Gradi	ng sca	le		Under:	50	5 (five) (F)				
					51 - 60 poir	nts	6 (six) (E)				
					61 - 70 poir		7 (seven) (D)				
					71 - 80 poir		8 (eight) (C)				
					81 - 90 poir		9 (nine) (B)				
19.	Droro	micita	s for taking the final exam	`	91 - 100 poir Activity 16.1	its	10 (ten) (A)				
			s for taking the final exam	L	English						
20.	Langu										
21.	Course evaluation Student questionnaire										
22.	Textbooks										
	22.1.	Instruction materials									
		No.	Author		Title	Publisher	Year				
		1.	Randy D. Down,		nmental	Wiley	2005				
			Jay H. Lehr		nentation and	Interscience,					
		2	Doebelin E. O.:	•	is Handbook	Hoboken, NJ	2002				
		2.	Doebenn E. O.:		rement Systems - ation and Design	McGraw-Hill, NY	2002				
		3.	F. R. Bourden, D.		nmental	McGraw Hill	2004				
			Donnert,		ring Handbook		2001				
			T. Godish, I.		U						
			McKelvie								
	22.2.	Supp	lemental Instruction Mate	erials							
		No.	Author		Title	Publisher	Year				
		1.	G. Bruce Wiersma	Env	ironmental	CRC Press	2004				
					nitoring						
		2.	Janick Artiola, Ian		ironmental	Elsevier	2004				
			Pepper, Mark Brusseau		nitoring and	Academic Pres	S				
				Cha	racterization						

Add	1. 3	Course program for the	second	l level (second o	cycle - pos	tgraduate) (	of studies			
1.	Course tit			Environmental S						
2.	Code		1	1M5SEE06						
3.	Study gro	oup(s)	S	SEE						
4.	The organ	nizer of the study program (un	nit, "	Ss. Cyril and M	ethodius"	University in	Skopje,			
	institute,	department)	F	Saculty of Mecha	anical Eng	ineering – Sl	copje			
5.	Level (fir	st, second, third)	S	becond						
6.	Academic	e year / semester	7	/ / winter	7. ECT	S credits	6			
8.	Professor		P	rof. dr. Atanask	o Tuneski					
9.	Prerequis	ites	N	Vone						
10.	Course of	pjectives (competences):								
	Acquire knowledge of:									
	<ul> <li>analysis (PA), cost-benefit analysis (CBA), material intensity per unit service (MIPS) analysis, total material requirement (TMR) analysis, ecological footprint (EF), exergy analysis, emergy analysis and risk assessment (RA) for chemicals.</li> <li>Case study where different environmental systems analysis tools are implemented.</li> </ul>									
	DESCRIPTION OF THE ENVIRONMENTAL SYSTEMS ANALYSIS TOOLS. Selecting questions and tools. Environmental Impact Assessment (EIA). Strategic Environmental Assessment (SEA). Life Cycle Assessment (LCA). Positional Analysis (PA). Cost-Benefit Analysis (CBA). Material Intensity per Unit Service (MIPS). Total Material Requirement (TMR). Ecological Footprint (EF). Exergy analysis. Emergy analysis. Risk Assessment (RA) CASE STUDY. Introduction to the case study. Inventory data. Environmental systems analysis (Choice of tools, LCA calculations. MIPS calculations. Ecological footprint calculations. Exergy calculations. Discussion of the case study results DISCUSSION AND CONCLUSION. Natural resource use. Environmental impacts. Natural resource use and environmental impacts. Usability. Integration . Conclusions									
12.	Study me	thods: lectures, lab, project as	ssignme	ents, individual a	assignmen	ts, self-study				
13.	Total hou	rs		6 ECTS x 30 =	= 180 hour	rs				
14.		ocation per activity:		30 + 15 + 40 +	30 + 65 =	180 hours				
15.	Lectures/	Lab	15.1.	Lectures (15 w			30 hours			
			15.2.	Lab (student w			15 hours			
16.	Project W	ork/Assignments	16.1.	Project assignr			40 hours			
			16.2.	Individual assi	gnments		30 hours			
			16.3.	Self-study			65 hours			

17. Points/Marks:

	17.1.	E	Exams		40				
	17.2.	P	Projects			50			
	17.3.		Attendance			10			
18.	Grading			Under	50	5 (five) (F)			
10.	Grading	Searc		51 - 60 poi		$\frac{6 (\text{six}) (\text{E})}{6 (\text{six}) (\text{E})}$			
				61 - 70 poi		7 (seven) (D)			
				71 - 80 poi		8 (eight) (C)			
				81 - 90 poi	nts	9 (nine) (B)			
				91 - 100 poi	nts	10 (ten) (A)			
19.	Prerequ	isites	for taking the final exam	Activity 16.1					
20.	Langua	ge		English	English				
21.	Course	evalua	ntion	Student questionnair	Student questionnaire				
22.	Textboo	oks							
	22.1	Instr	uction materials						
		No.	Author	Title	Publisher	Year			
	1. Charles H. Eclleston		Environmental	CRC Press	2011				
				Impact					
			Assessment: A						
				Guide to Best					
				Professional					
				Practices		2012			
		2.	John Glasson, Riki	Introduction To	Routledge	2012			
			Therivel, Andrew Chadwick	Environmental					
			Chadwick	Impact Assessment (Natural and Built					
				Environment					
				Series)					
		3.	Walter Klopffer, Birgit	Life Cycle	Wiley-VCH	2014			
			Grahl	Assessment (LCA)					
	22.2	Supp	lemental Instruction Materia	ls					
		No.	Author	Title	Publisher	Year			
		1.	Glasson J., Therivel R.	Introduction to	The Natural	1999			
			and Chadwick A.	Environmental	and Built				
				Impact	Environment				
				Assessment.	Series. T.J.				
				Principles and	International				
			procedures,	Ltd, Padstow,					
			process, practice	UK					
				and prospects.		1005			
		2.	Odum, H.T.	Environmental	John Wiley &	1996			
				Accounting -	Sons, Inc.,				

		E	Emergy and Nev	w York.						
			nvironmental							
		d	ecision making							
Add. 3 Course program for the second level (second cycle - postgraduate) of studies										
1.	Course title		An Introduction to Eco-in	nnovation						
2.	Code		M5SEE07							
3.	Study group(s)		EE							
4.	The organizer of the study program (un	nit, "	"Ss. Cyril and Methodius" University in Skopje,							
	institute, department)	F	Saculty of Mechanical En	ngineering - Skopje						
5.	Level (first, second, third degree)	S	econd							
6.	Academic year / semester			CTS credits 6						
8.	Professor	F	Prof. dr Atanas Kochov							
9.	Prerequisites for enrolling the course									
10.	Course objectives (competences):									
	This course will contribute toward ret	ains the	e invaluable core messag	ge that eco-innovation and						
	technologies which will contribute tov	vard the	e sustainable developme	nt, have become central to						
	debates about environment and economic development. Containing a substantial number of new									
	boxed case studies, learning outcomes									
	and websites, studying and analyzing									
	business models for implementation,									
	students and their competences for	develo	pping projects and cas	e studies for sustainable						
	development.									
11.	Course content:									
	This course places stronger emphas		-							
	technologies, resource efficiency and									
	innovation approach, business models									
	students toward new consideration to		_	*						
	introducing eco-innovation technologi									
10	the lower carbon growth, climate adap			<u> </u>						
12.	Study methods: Interactive lectures, au			e, selfrunning and/or team						
12	work on project assignments, selfrunni Total hours	ing assi	6 ECTS x 30 = 180 hor	340						
13.			30+30+30+30+60=180							
14.	Hours allocation per activity:	15 1								
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2	<i>'</i>						
16	Project Work/Assignments	15.2.	Lab (student work)	30 hours						
16.	Floject work/Assignments	16.1.	Project assignments	30 hours						
		16.2.	Individual assignments	30 hours						
		16.3.	Self-study	60 hours						
		1	ĺ							

60 points

Exams

Points/Marks:

17.1.

17.

	17.2.	P	Projects			30 points
	17.3.	A	Attendance			10 points
18.	Grading	g scale	;	Under	50	5 (five) (F)
				51 - 60 poi	nts	6 (six) (E)
				61 - 70 poi	nts	7 (seven) (D)
				71 - 80 poi	nts	8 (eight) (C)
				81 - 90 points		9 (nine) (B)
				91 - 100 poi		10 (ten) (A)
19.	Prerequ	iisites	for taking the final exam	Seminar work delive	ered and approve	d
20.	Langua	.ge		English		
21.	Course	evalua	ation	Student questionnair	e	
22.	Textbo	oks				
	22.1	Instr	uction materials			
		No. Author		Title	Publisher	Year
		1.	Sperber B.	Environmental	Springer-	2008
			1	Sound	Verlag	
				Technologies for		
				Sustainable		
				Development		
		2.	Luken R., Rompaey F.	Environment and	Unido Press	2007
				Industry in		
				Developing		
				Countries: Assessing the		
				Adoption of		
				Environmentally		
				Sound Technology		
		3.	Hermiosilla J., Gonzales P.	Eco-innovation:	MacMillan	2009
			,	Sustainability and	Bubl.	
				Competitiveness		
	22.2	Supp	plemental Instruction Material	S		
		No.	Author	Title	Publisher	Year
		1.	David R. Godschalk	Sustainable	APA Planners	1 edition
				Development	Press;	(April 7,
				Projects:		2014)
				Integrating Design,		
				Development, and		
				Regulation		

Add	1. 3		Course program	m for	th	ne first, second an	d third	level (cycle) of stud	lies		
1.	Course	title		]	No	on-conventional po	ower plai	nts			
2.	Code				1N	16SEE01					
3.	Study	group(s	s)		SE	EE					
4.	The or	ganizei	r of the study progra	am '	"S	s. Cyril and Metho	odius" U	niversity in Skopje,			
	(unit, i	nstitute	e, department)	]	Fa	culty of Mechanic	al Engin	eering – Skopje			
5.	Level	(first, s	econd, third)		Se	cond					
6.	Acade	mic yea	ar / semester	7	V,	Summer 7	7. ECT	S credits	6		
8.	Profes	sor		]	Pro	of. dr. Slave Arme	enski				
9.	Prereq	uisites		]	No	one					
10.	Profou selection	nd kno on of a	tives (competences) whedge about uncord dvanced equipment exploitation and ma	nventi , techi	nic	cal control, supervi	ision and		and		
11.	Course Introdu munici efficie	Course content: Introducing the unconventional modern plants for electricity (solar, geothermal, biomass, solid municipal waste); gaseous fuel plants: thermal cycling: heat balance and heat processes: efficiency coefficient: Equipment: economic and environmental aspects  Study methods:									
12.			IS:			6 ECTC 20 1	100	1			
13.	Total hours					6 ECTS x 30 hou					
14.	1 ,					30+45+40+30+35		nours	20.1		
15.	Lectur	es/Lab		15.1	` '				30 hours 45 hours		
16.	Droice	t Work	/Assignments	15.2 16.1		Project assignment			40 hours		
10.	Flojec	t WOIK	Assignments	16.1	_	Individual assign			30 hours		
				16.3		Self study	mems	35 hours			
17.	Points	/Marks	•	10.5	).	Self study			33 Hours		
1/.	17.1.	Tests	•						50 points		
	-	Projec	te						50 points		
		Attend							50 points		
18.	ļ	g scale				Under	r 50	5	(five) (F)		
10.	Gradin	ig scarc	,	-		51 - 60 po			6 (six) (E)		
				ŀ		61 - 70 po			even) (D)		
				-		71 - 80 po		,	eight) (C)		
				-		81 - 90 po		,	(nine) (B)		
				-		91 - 100 po			(ten) (A)		
19.	Prerea	nisites	for taking the final		Δ	accomplished 16.1	•				
1).	exam	u1511C3	ioi mking the infai			accomplished 10.1	and 10.	_			
20.	Language					nglish					
21.		e evalua	ation			tudent questionnai	ire				
22.	Textbo		MI VII		J	taaoni questionnai					
	22.1.	No.	Author			Title		Publisher	Year		
	1.	1.	B.W.Wilkinson,		+	Cogeneration of		CRC Press, Inc,	1001		
	<u> </u>	1.	2. 11. 11 IIKIIISOII,		`			CITC I ICSS, IIIC,			

		R.W.Barnes	Electricity and	Boca Raton,	
			Useful Heat"	Florida	
22.2.	22.2. Supplemental Instruction Mater		rials		
	No.	Author	Title	Publisher	Year
	1.	P.K.Nag	"Power Plant	Tata McGray-Hill	2008
			Engineering", Third	Publishing	
			Edition	Company Limited,	
				New Delhi	

Add	. 3	Course program for the	he secor	nd level (second cycle - postg	graduate) of studies				
1.	Course	title	W	Water and Waste Water Treatment					
2.	Code		1N	1M6SEE02					
3.	Study g	roup(s)	SI	EE					
4.	The org	anizer of the study progra	m "S	s. Cyril and Methodius" Univ	versity in Skopje,				
	(unit, in	stitute, department)	Fa	culty of Mechanical Engineer	ring - Skopje				
5.		First, second, third)	Se	econd					
6.		nic year / semester			ECTS credits 6				
8.	Profess			ssoc. prof. dr. Zoran Markov					
9.	Prerequ			one					
10.		objectives (competences):							
	Learn how to water treatment works, operation in municipal and industrial treatment plant								
11.		ourse content:							
		_	-	ty parameters, waste water tre	eatment, activated sludge				
10	processes, water quality laws and regulations  Study methods: lectures, lab, project assignments, individual assignments, self-study.								
12.		1 3	ect assig		its, self-study.				
13. 14.	Total ho			6 ECTS x 30 = 180 hours	00 h avvas				
15.	Lecture	llocation per activity:	15.1.	30 + 15 + 40 + 30 + 65 = 180  hours					
15.	Lecture	s/Lab	15.1.	Lectures (15 weeks x 2)	30 hours 15 hours				
16.	Droinat	Work/Assignments	16.1.	Lab (student work) Project assignments	40 hours				
10.	Project	w ork/ Assignments	10.1.	Project assignments	40 Hours				
			16.2.	Individual assignments	30 hours				
			16.3.	Self-study	65 hours				
17.	Points/I	Marks:							
	17.1.	Exams			40				
	17.2.	Projects			50				
	17.3.	Attendance	10						
18.	Grading	g scale		Under 50	5 (five) (F)				
				51 - 60 points 6 (six) (E					
				61 - 70 points	7 (seven) (D)				

						71 - 80 j	ooints	8 (eight) (C)	
						81 - 90 j	oints	9 (nine) (B)	
						91 - 100 <sub>1</sub>	91 - 100 points 10 (ten)		
19.	Prerequisites for taking the final exam				Activity 16	.1			
20.	Language				English				
21.	Course	evaluati	on		Student questionnaire				
22.	Textbo	oks							
	22.1.	Instruct	tion materials						
		No.	Author		Title	Publisher		Year	
		1.	Lee C.C.	Hand	book of	Mc-Graw	2007		
				Envir	onmental	Hill			
					eering				
				Calcu	lations				
		2.	Kemer F.N.			Mc-Graw			
					lco Water	Hill			
				Hand					
	22.2.	Supple	mental Instructio	n Mate	rials				
		No.	Author		Title	Publisher		Year	
		1.	WEF Manual	Indus	trial waste	WEF		2008	
			of Practice	water		Press			
			No. FD-3	mana	gment,				
					nent and				
				dispos	sal				

Add	l. 3	Course program for the sec	ond level (second	cycle	e - postgraduate) of	studies	
1.	Course title	e	Energy efficiency				
2.	Code		1M6SEE03				
3.	Study grou	p(s)	SEE				
4.	The organi institute, de	zer of the study program (unit, epartment)	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering - Skopje				
5.	Level (first	t, second, third)	Second				
6.	Academic year / semester		V / winter	7.	ECTS credits	6	
8.	Professor		Prof. dr. Done Tashevski				
9.	Prerequisit	es	None				
10.	*						
11.	, , , , , , , , , , , , , , , , , , , ,						

	Ways for meet th	Ways for optimization and selection of parameters in which optimizes the system in order to meet the energy efficiency criteria.  Implementation of analyzed, modeled and optimized systems to specific examples.						
12.			s: lectures, lab, project as					
13.	Total he		, ,1 J		6 ECTS x 30 = 180 hours			
14.	Hours a	llocati	on per activity:		30 + 15 + 40 + 30 + 65 = 180  hours			
15.	Lecture	s/Lab		15.1.	`		)	30 hours
				15.2.	\			15 hours
16.	Project	Work/	Assignments	16.1.	Project assignm	ents		40 hours
				16.2.	Individual assig	nments		30 hours
				16.3.	Self-study			65 hours
17.	Points/I	Marks:			<u>,                                      </u>			
	17.1.	Е	Exams					40
	17.2.	P	Projects					50
	17.3.	A	Attendance			10		
18.	Grading	g scale			Und	er 50		5 (five) (F)
					51 - 60 p			6 (six) (E)
					61 - 70 p			7 (seven) (D)
					71 - 80 p			8 (eight) (C)
					81 - 90 p			9 (nine) (B)
19.	Drorogu	isitos t	for taking the final exam		91 - 100 points 10 (ten) Activity 16.1			10 (ten) (A)
			ioi taking the imal exam		<u> </u>			
20.	Langua Course		u:		English Student questionnaire			
21.			U1011 		Student questionn	aire		
22.	Textboo							
	22.1		uction materials	1		1		
		No.	Author		Title		ublisher	Year
		1.	D. Tashevski		Energy efficiency		ected	2014
							ares and	
		2.	D.R. Wulfinghoff		Energy efficiency	Ene	douts	1999
		۷.	D.K. Wullingholl		Energy efficiency		tute press	1777
		3.	P. Bertoldi		Energy efficiency		nger	2007
	22.2	Supp	lemental Instruction Mat	erials		1		
		No.	Author		Title	P	ublisher	Year
		1.	D. R. Wulfinghoff		Energy Efficiency	]	Energy	2000
			_		Manual		itute press	

Add	. 3	Course program for th	e seco	ond level (second cycle - post	graduate) of studies			
1.	Course title			Eco engines				
2.	Code			1M6SEE04				
3.	Study group	(s)		SEE				
4.		er of the study program (ur		"Ss. Cyril and Methodius" University in Skopje,				
	institute, dep			Faculty of Mechanical Engineering - Skopje				
5.		second, third degree)		Second				
6.		ear / semester		V / summer 7. ECTS	credits 6			
8.	Professor			Prof. d-r Mile Dimitrovski				
9.		s for enrolling the course		None				
10.				approach to combustion in IC				
				es. Understanding hybrid tech	nologies, alternative			
		engines end characteristics						
11.				models of eco engines, hybrid				
			new 1	fuels. Interaction between eng	ine construction and			
1.0	alternative fuels.  Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team							
12.					Ifrunning and/or team			
10		ject assignments, selfrunni	ng ass					
13.	Total hours			6 ECTS x 30 = 180 hours	0.1			
14.	Hours allocation per activity:			30 + 30 + 30 + 30 + 60 = 18				
15.	Lectures/Lab	0	15.1.	` '	30			
1.0	D ' (W)	1 / 4	15.2.	,	30			
16.	Project Worl	k/Assignments	16.1.	Project assignments	30			
			16.2.	Individual assignments	30			
			16.3.	Self-study	60			
17.	Points/Mark	s:						
		Exams			50			
	17.2.	Projects			45			
		Attendance			5			
18.	Grading scal			Under 50	5 (five) (F)			
10.	Grading scal			51 - 60 points	6 (six) (E)			
				61 - 70 points	7 (seven) (D)			
				71 - 80 points	8 (eight) (C)			
				81 - 90 points 8 (eight) 81 - 90 points 9 (nine)				
19.	Prerequisites	s for taking the final exam		91 - 100 points 10 (ten) (A) Presented projects				
20.	Language	5		English				
21.	Course evalu	aation		Student questionnaire				
22.	1							
		truction materials						
	22.1 Histraction materials							

	No.	Author	Title	Publisher	Year
	1.	Mile Dimitrovski	ECO Engines	Internal issue	2008
	2.	Handbook of Air Pollution from Internal Combustion Engines: Pollutant Formation and Control	Eran Sher	Academic Press	1998
	3.	Transport and the environment	R. E. Hester, R. M. Harrison	RS.C advanced chenical science	2006
22.2 Supp		lemental Instruction Materials	S		
	No.	Author	Title	Publisher	Year
	1.	The biodiesel handbook	Van Gerpen, Knothe and others	AOCS Press, Illinois	2005

Add	1. 3	Course program for the	second	l level (second o	cycle	- postgraduate) of	studies	
1.	Course title		Г	Design of fluid co	onve	ying and hydro pow	er system	
2.	Code		1	M6SEE05				
3.	Study group	(s)	S	SEE				
4.	The organize	er of the study program (un	it, "	Ss. Cyril and Mo	ethoc	lius" University in S	Skopje,	
	institute, dep		F	aculty of Mecha	ınica	l Engineering - Sko	pje	
5.		second, third)	S	econd				
6.	Academic ye	ear / semester		/ / winter	7.	ECTS credits	6	
8.	Professor(s)			rof. dr. Valentin		•		
			Α	ssoc. prof. dr. Z	Coran	Markov		
9.	Prerequisites	S	N	Vone				
10.	Course object	ctives (competences):						
		Introduction to systems for hydraulic and pneumatic convey of fluids. Developing mathematical						
	models for hydraulic calculation of the systems and their components. Introduction to systems							
	• •	for hydro power. Developing mathematical models for hydraulic calculation of the systems and						
	their compo							
11.	Course conto							
		perties of fluids, water, oil	_			•		
	•	nd Pneumatic Conveying: c			_	-		
	• •	r systems: pump stations a	nd hydi	ro power plants:	calc	ulation, devices and		
	equipment							
	Techno-ecor	nomical calculation and eco	onomic	parameterisatio	n			
12.	Study metho	ods: lectures, lab, project as	signme	ents, individual a	assigi	nments, self-study.		
13.	Total hours			6 ECTS x 30 = 180 hours				
14.	Hours alloca	tion per activity:		30 + 15 + 40 + 30 + 65 = 180 hours				
15.	Lectures/Lal		15.1.	Lectures (15 w				

				15.2.	Lab (student work	()	15	5 hours	
16.	Project	Work	/Assignments	16.1.	Project assignmen	its	4(	) hours	
				16.2.	Individual assignment	nents	30	) hours	
				16.3.	Self-study		65	hours	
17.	Points/I	Marks	: :		<u> </u>				
	17.1.	E	Exams					40	
	17.2.	F	Projects					50	
	17.3.	A	Attendance					10	
18.	Grading	g scale	<b>,</b>		Under	50	5 (fi	ve) (F)	
					51 - 60 poi	nts	6 (s	ix) (E)	
					61 - 70 poi		7 (seve	, , ,	
					71 - 80 poi			ht) (C)	
					81 - 90 poi		`	ne) (B)	
19.	Prerequisites for taking the final exam				91 - 100 poi Activity 16.1	nts	10 (16	en) (A)	
20.	Language				English				
21.	Course	_	 ation		Student questionnair	·e			
22.	Textbooks				statent questionnan				
	22.1		uction materials						
		No.	Author		Title	Puhl	isher	Year	
		1.	Speight J.G.		11110	Gulf Publis		2007	
		1.	Speight 3.G.		Natural Gas – A Basic Handbook	Company,	-	2007	
		2.	Oneil A. Williams	]	Pneumatic and Hydraulic Conveying of Solids	CRC Press		1983	
		3.	G.I.Krivcenko	1	Hydraulic machines-turbiner and pumps	Lewis publ	isher	1994	
	22.2	Supp	plemental Instruction Mat			•		•	
		No.	Author		Title	Publ	isher	Year	
		1.	Wang X., Economides M.		Advanced Natural Gas Engineering	Company	blishing , Houston, xas	2009	
		2.	David Mills,	]	Pneumatic Conveying Design Guide	ELSE	VIER	2004	
		3.	Frank Yeaple		Fluid Power	CRC	Press	1995	

		Design Handbook	

Add	l. 3 Co	ourse program for the seco	ond lev	el (second cycle - postgradu	ate) of studies		
1.	Course title	2	V	Vaste management	,		
2.	Code		1	M6SEE06			
3.	Study grou	p(s)	S	SEE			
4.	The organi	zer of the study program (u	nit, "	Ss. Cyril and Methodius" Un	iversity in Skopje,		
	institute, de	epartment)	F	Faculty of Mechanical Engine	ering - Skopje		
5.	Level (first	, second, third degree)		Second			
6.		year / semester		7 / summer 7. ECTS			
8.	Professor		Α	Ass. Prof. d-r Dame Dimitrov	ski		
9.		es for enrolling the course		None			
10.	economical waste mana Understand	lly) system for waste managagement system of a produc	gement: t or a so gies for	anize and run efficient (environment) in industry. Understanding the plution for the industry or cor reducing waste, reusing was	e chain of actions for munity.		
11.	management. Systems for waste management in communities and industry. Cain of actions in waste management. Examples for waste reduction. Examples for reusing waste, turning waste in to energy etc.						
12.		ods: Interactive lectures, au oject assignments, selfrunni			Ifrunning and/or team		
13.	Total hours			$6 \text{ ECTS } \times 30 = 180 \text{ hours}$			
14.		cation per activity:		30 + 15 + 45 + 45 + 45 = 180			
15.	Lectures/La	ab	15.1.	Lectures (15 weeks x 2)	30		
			15.2.	Lab (student work)	15		
16.	Project Wo	ork/Assignments	16.1.	Project assignments	45		
			16.2.	Individual assignments	45		
			16.3.	Self-study	45		
17.	Points/Mar	ks:					
	17.1.	Exams			30		
	17.2.	Projects			60		
	17.3.	Attendance			10		
18.	Grading sc	ale		Under 50	5 (five) (F)		
	6 2 3			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.	Prerequ	isites 1	for taking the final exam	Presented projects			
20.	Langua	ge		English			
21.	Course	evalua	tion	Student questionnaire			
22.	Textboo	oks					
	22.1	Instru	action materials				
		No. Author		Title	Publisher	Year	
	1. European commission		Waste management options	EC	2001		
		2.	Nicholas P. Chermisinoff	Handbook of solid waste management and waste minimization technologies	Butterworth Heinemann	2003	
	22.2	Supp	lemental Instruction Materials	S			
		No. Author		Title	Publisher	Year	
		1.	George Tchobanoglous, Frank Kraith	Handbook of solid waste management	McGraw Hill	2002	

Add.	3	Course program for the seco	ond level (s	second cycle - p	oost	graduate) of stud	ies	
1.	Course	e title	Energy vs	. Sustainable D	evel	opment: Concepts	and	
			Aspects					
2.	Code		1M6SEE07					
3.	Study	group(s)	SEE					
4.	The or	ganizer of the study program	"Ss. Cyril	and Methodius	"Ur	niversity in Skopje	,	
	(unit, i	institute, department)	Faculty of	Mechanical Er	ngine	eering - Skopje		
5.	Level	(first, second, third degree)	Second					
6.	Academic year / semester		V / summ	er	7.	ECTS credits	6	
8.	Profes	sor	Ass. prof.	dr. Ana M. Laz	zarev	yska –		
9.	Prereq	uisites for enrolling the	None					
	course							
10.	Course	e objectives (competences):						
	Introd	uction to the sustainability conc	cept and asp	pects implement	ted c	on energy systems,	both on	
	the de	mand and the supply side.						
11.	Course	e content:						
		uction to the concept of Sustain		•				
		nenting the SD concept to ener						
12.	_	methods: Interactive lectures, g	•	• •	actic	e, work on project		
		ments/case studies (team work)	, selfrunnir					
13.	Total l			6 ECTS x 30 =				
14.		allocation per activity:				- 65 =180 hours		
15.	Lectur	res/Lab	15.1.	Lectures (15 v	veek	s x 2)	30	
			15.2.	Lab (student w	vork	)	15	

16.	Projec	ct Work	x/Assignments	1	16.1.	Project assign	ments		40	
				1	16.2.	Individual ass	signmen	ts	30	
				1	16.3.	Self-study			65	
17.	Points	s/Marks	s:			1				
	17.1.		Exams						40	
	17.2.		Projects						50	
	17.3.		Attendance						10	
18.	Gradi	ng scal	e			Un	der 50	5	(five) (F)	
						51 - 60		(	6 (six) (E)	
						61 - 70		•	even) (D)	
						71 - 80	-		eight) (C)	
						81 - 90			(nine) (B)	
19.	Prerequisites for taking the final exam					91 - 100 Completed activi			(ten) (A)	
19.	Prerequisites for taking the final exam					.7.3)	ity 13.2,	10.1. and 10.2 (	17.2 &	
20.	Language of Instruction					English				
21.	Course evaluation					Student question	naire			
22.	Textb	Textbooks								
	22.1 Instruction materials									
		No.	Author		Т	Title		Publisher	Year	
		1.	S. Bell, S. Morse	Sustain	abilit	y Indicators:	EarthS	can	2000	
			,	Measur			Public	ations. Ltd.		
				immeas						
		2.	T.E. Graedel, B.	Industri	ial Ec	cology		n Education	2003	
	22.2	C1	R. Allenby	M-4:-1-			Inc.			
	22.2		emental Instruction I	viateriais		7'.1		D 11' 1	***	
		No.	Author			Title	-	Publisher	Year	
		1.	UN CSD			Development platform		UN		
		2	Organisation of Economic Co- operation and Development (OECD)	"Core Set of Indicator Environmental Performance Reviews' synthesis report by the Group on the State of Environment.		tal Reviews". A port by the e State of the t.	Paris:	39	1993	
		3	Golay, M., Field, R., Green, Jr. W., Wright, J.C.	Energy	Introduction to Sustainab Energy (Online open course-materials)		ourses, engine	ocw.mit.edu/c /nuclear- ering/22-081j- action-to-	2010	

				sustainable-energy-fall-2010/)	
	4	D. A. Vallero, P. A. Vesilind	Socially Responsible Engineering: Justice in	John Wiley & Sons Inc.,	2007
			Risk Management		

Ad	d. 3 Course program for the	ne second level (second cycle - postgraduate) of studies				
1.	Course title	Automation of environmental processes				
2.	Code	1M6SEE08				
3.	Study group(s)	SEE				
4.	The organizer of the study program	"Ss. Cyril and Methodius" University in Skopje,				
	(unit, institute, department)	Faculty of Mechanical Engineering – Skopje				
5.	Level (first, second, third)	Second				
6.	Academic year / semester	V / summer 7. ECTS credits 6				
8.	Professor(s)	Ass. prof. dr. Emil Zaev				
		Ass. prof. dr. Darko Babunski				
9.	Prerequisites	None				

## 10. Course objectives (competences):

Acquire knowledge of:

Analysis and design of automation systems for river monitoring and water and wastewater treatment processes. Acquire programming skills in the Matlab platform. Analysis, design and implementation of SCADA systems – Supervisory Control and Data Acquisition and Programmable Logic Controllers (PLC). Functionality and characteristics of environmental measurement systems to monitor and control environmental processes;

## 11. Course content:

Introduction to the most commonly used types of control algorithms (sequential, continuous, On-Off and Feedforward control, feedback (P, PI and PID Control) Advanced control algorithms: adaptive, nonlinear, model control)

- Examples of implementation of control algorithms in facilities for treatment of drinking water (Basic plant model: Control of pumps, coagulation dosing, pH, purification and sedimentation, filtration and chlorination) plants for wastewater treatment (Control of dissolved oxygen, depth of the sludge refiner) and general control algorithms in the plant,
- Control system architecture. Supervisory Control and Data Acquisition (SCADA) and DCS systems (Introduction, SCADA / DCS software, hardware management system (PLC, RTU, Networks), OPC),
- Programming and configure the Programmable Logic Controllers (PLC) control subsystem (PLC programming)
- Basic instrumentation (instrumentation for measuring flow, temperature, level, pressure and analytical instrumentation).
- 12. Study methods: lectures, lab, project assignments, individual assignments, self-study.

13.	Total hours	6 ECTS x 30 = 180 hours
14.	Hours allocation per activity:	30 + 15 + 40 + 30 + 65 = 180 hours

15.	Lecture	s/Lab		15.1.	Lectures (15 weel	ks x 2)	30 hours		
				15.2.	`	,	15 hours		
16.	Project	Work	/Assignments	16.1.	. Project assignment	nts	40 hours		
				16.2.	. Individual assigni	ments	30 hours		
				16.3.	. Self-study	65 hours			
17.	Points/N	Marks		I		<u> </u>			
	17.1.	E	Exams				40		
	17.2.	P	Projects				50		
	17.3.	A	Attendance				10		
18.	Grading	g scale	;		Unde	er 50	5 (five) (F)		
					51 - 60 pc	oints	6 (six) (E)		
					61 - 70 pc	oints	7 (seven) (D)		
		71 - 80 points					8 (eight) (C)		
	81 - 90 po						9 (nine) (B)		
10	D	1-14	C	_	91 - 100 pc	oints	10 (ten) (A)		
19.			for taking the final exan		Activity 16.1				
20.	Langua		.•		English				
21.	Course		ation		Student questionnai	re			
22.	Textboo								
	22.1	Instr	uction materials						
		No.	Author		Title	Publisher	Year		
		1.	AWWA		Water treatment plant design	McGraw-Hill	1990		
		2.	G. Tchobanoblous		Wastewater Engineering Treatment and Reuse	McGraw-Hill	2003		
		3.	M.L. Davis		Water and Wastewater Engineering	McGraw Hill	2010.		
	22.2	Supp	lemental Instruction Ma						
		No.	Author		Title	Publisher	Year		
		1.	S.A.Boyer		SCADA:	ISA - The	1999		
					Supervisory	Instrumentation,			
					Control and Data	Systems, and			
					Acquisition	Automation			
		2. W. Bolton Programmable Logic Controllers			Drogrammahla	Society	2000		
				Elsevier	2009				
		Logic Controllers			Logic Controllers				

Add	1 0		l level (second cycle - postg		studies			
1.	Course title	C	Clean fossil and alternative fu	els energy				
2.	Code		M6SEE09					
3.	Study group(s)	S	EE					
4.	The organizer of the study program (		Ss. Cyril and Methodius" Ur	•	10			
	institute, department)		aculty of Mechanical Engine	ering - Skop	je			
5.	Level (first, second, third degree)		econd					
6.	Academic year / semester		7 / summer 7. ECTS		6			
8.	Professor		Assoc. prof. dr. Risto Filkoski	<u>i</u>				
9.	Prerequisites for enrolling the course	N	Vone					
10.	Course objectives (competences):							
11.	protection that apply to combustion plants. Analysis, calculation and optimal performance of combustion systems. Modelling and simulation techniques of aerodynamics, combustion and heat transfer in thermal energy systems (boilers, combustors, furnaces, heat exchangers etc.).  Course content:  Properties of fossil and alternative fuels. Energy transformations of fuels: combustion, pyrolysis,							
	gasification, liquefaction. Mass and energy balance of combustion process. Kinetics and dynamics of fuels combustion.							
	Processing and handling of solid fuel examples of application.	s. Metho	ds and techniques for combu	stion of solid	l tuels,			
	Processing and handling of liquid and solid fuels, examples of application.	d gaseous	s fuels. Methods and techniqu	ues for comb	ustion of			
	Environmental considerations. Classidischarges. Air pollution control. Technical Thermodynamics and kinetics of SO reduction. Thermodynamics and kinetics of some emission reduction. Methods and technical technical reduction. Greenhouse gase emission.	chniques formation tics of N hniques f	for reduction of solid particle on. Methods and techniques for formation. Methods and to combined deSO <sub>2</sub> /deNO <sub>x</sub> .	es emission. For SO <sub>2</sub> emission echniques for Methods for	sion r NO <sub>x</sub> CO			
	Modelling, simulation and optimisati plants, furnaces, thermal energy facil		•					
12.	Study methods: Interactive lectures, a work on project assignments, selfrun	•	• •	lfrunning and	d/or tean			
13.	Total hours		6 ECTS x 30 hours = 180 h	ours				
14.	Hours allocation per activity:		30+30+40+30+50=180 hours					
15.	Lectures/Lab	15.1.	Lectures		30 hour			
		15.2.	Lab (student work)		30 hour			
16.	Project Work/Assignments	16.1.	Project assignments		40 hou			

				16.2.	Individual assignn	nents	30 hours
				16.3.	Self-study		50 hours
17.	Points/	Marks	<b>:</b> :	ı	1	1	
	17.1.	]	Exams				50 points
	17.2.	]	Projects				45 points
	17.3.	1	Attendance				5 points
18.	Grading	g scal	e		Under	50	5 (five) (F)
					51 - 60 poi	nts	6 (six) (E)
					61 - 70 poi	nts	7 (seven) (D)
					71 - 80 poi		8 (eight) (C)
				81 - 90 points			9 (nine) (B)
		91 - 100 point					10 (ten) (A)
19.	Prerequisites for taking the final exam				Activities 15.2 and 1	6.1	
20.	Langua			]	English		
21.	Course	evalu	ation	,	Student questionnair	e	
22.	Textbooks						
	22.1 Instruction materials						
		No.	Author		Title	Publisher	Year
		1.	Edited by J.B. Kitto and	1 3	Steam, It's The Bab		2005
			S.C. Stultz		generation and use,	& Wilcox	
					Ed. 41	Compaany	
		2.	Baukal C.E. et al.		CFD in Industrial Combustion	CRC Press	2001
		3.	Group of authors		IPPC, Ref.	European	2006
			1		Document on BAT	Commission,	
				1	for Large	Seville	
					Combustion Plants		
	22.2	Sup	plemental Instruction Mat	erials			
		No.	Author		Title	Publisher	Year
		1.	Warner, Davis and War	·k	Air Pollution: Its	Addison-	2003
					Origin and Control,	Wesley-	
					3 <sup>rd</sup> Edition	Longman	
		2.	Petrovski I. J.		Steam Boilers, 2nd ed.	UKIM	2009
		3.	Baukal C.E. et al.		Heat Transfer in Industrial	CRC Press	2000
					Combustion		

Add	1. 3	Course program	for the	second level (second c	ycle - ]	postgradı	uate) of		
1	G (1.1		-	studies	m/				
1.	Course title			Experts in Teamwork (E	211)				
2.	Code	( )		M6SEE10					
3.	Study group			SEE	,, II .	, .	C1 ·		
4.		er of the study program (un		Ss. Cyril and Methodiu		•			
_	institute, de			Faculty of Mechanical E	enginee	ering - Sko	орје		
5.	, ,	second, third degree)	2	Second VI / winter 7. ECTS credits 10					
6.		ear / semester					10		
8.	Professor			Assoc. prof. dr. Zoran M					
0	D ::	C 11' 41		Ass. prof. dr. Dame Dim	ntrovs	K1			
9.	•	s for enrolling the course	I N	Vone					
10.	10. Course objectives (competences):  Experts in Teamwork is a course in which students apply their academic competence in								
		nary project work to learn							
		Relevant issues from socie							
		ent teams should work tog		<del>-</del>			_		
		hat the team members choo	ose, to s	suit their combined com	petenc	ce and the	theme of		
	the group. Students develop teamwork skills by reflecting on and learning from specific cooperative								
		situations in their project work. Reflections are shared by the team and are stimulated by facilitation, reflection writings, interaction exercises, and feedback to each other.							
1.1			tion exe	ercises, and feedback to	each (	otner.			
11.	Course cont		<b>C</b> .	1 , 1 1 .	1' ' 1	1			
		EiT are divided into groups					11 1.4		
		nary teams of five to six st							
		visor. Each group has a bro							
	_	rom working life. This the							
		nay have external partners	_			•			
		f the students' work. The de			c comp	petencies i	in the		
10		cified as a guide to help stu							
12.		ods: team work on project a	assignii	10 ECTS - 20 hour	aments	) le oures			
13.	Total hours	ation non activity		10 ECTS x 30 hours		Hours			
14.		ation per activity:	15 1	45+45+45+45+120=	=300		15 h oums		
15.	Lectures/La	D	15.1.	Lectures			45 hours		
1.0	D : 4377	1 / A *	15.2.	Lab (student work)			45 hours		
16.	Project wor	k/Assignments	16.1.	Project assignments			45 hours		
			16.2.	Individual assignment	ts		45 hours		
			16.3.	5.3. Self-study			120 hours		
17.	Points/Mark								
	17.1. Exams						40		
	17.2.	Projects					50		

	17.3.	A	Attendance			10		
18.	Grading	g scale	}	Under	50	5 (five) (F)		
				51 - 60 po	ints	6 (six) (E)		
				61 - 70 po	ints	7 (seven) (D)		
				71 - 80 points		8 (eight) (C)		
				81 - 90 po		9 (nine) (B)		
				91 - 100 po	ints	10 (ten) (A)		
19.	Prerequisites for taking the final exam			Activity 16.1 and 10	6.2			
20.	Language of Instruction			English				
21.	Course	evalua	ation	Student questionnaire				
22.	Textboo	oks						
	22.1	Instru	uction materials					
		No.	Author	Title	Publisher	Year		
		1.	Bjørn Sortland, http://www.ntnu.edu/eit	Course materials 2014, NTNU, Norway	NTNU	2014		
		2.						
		3.						
	22.2	2.2 Supplemental Instruction Materials						
		No.	Author	Title	Publisher	Year		
		1.						

## 17. List of teaching staff with information specified in Article 5 of the Regulation for obligatory components should own study programs from the first, second and third cycle of studies (Official Gazzete of the Republic of Macedonia" no. 25/2011 and 154/2011)

In implementation of teaching at faculty of Mechanical engineering Skopje there are 59 teachers, 38 of them are full professors, 8 are associate professors and 13 are assistant professors. Here is a list of the teaching staff:

- 1. Professor Armenski Slave
- 2. Professor Angusev Koco
- 3. Professor Bogatinovski Zoran
- 4. Professor Gocev Jovan
- 5. Professor Gavriloski Marjan
- 6. Professor Gecevska Valentina
- 7. Professor Lazo Dimov
- 8. Professor Dimitrovski Mile

- 9. Professor Doney Vanco
- 10. Professor Dudeski Ljuben
- 11. Professor Jakimovski Slave
- 12. Professor Jancevski Janko
- 13. Professor Kocov Atanas
- 14. Professor Korunoski Dame
- 15. Professor Kandikjan Tatjana
- 16. Professor Kostik Zvonimir
- 17. Professor Kuzinovski Mikolaj
- 18. Professor Mickoski Ivan
- 19. Professor Minovski Robert
- 20. Professor Malceski Aleksa
- 21. Professor Polenakovik Radmil
- 22. Professor Pandilov Zoran
- 23. Professor Runcev Dobre
- 24. Professor Stojkovski Valentino
- 25. Professor Sidorenko Sofija
- 26. Professor Tuneski Atanasko
- 27. Professor Trajkovski Laze
- 28. Professor Tasevski Risto
- 29. Professor Kosevski Milan
- 30. Professor Ciconkov Risto
- 31. Professor Caloska Jasmina
- 32. Professor Cakmakov Dusan
- 33. Professor Sarevski Milan
- 34. Professor Vrtanovski Gligorce
- 35. Professor Kozinakov Dimitri
- 36. Professor Tuneski Nikola
- 37. Professor Petreski Zlatko
- 38. Professor Simonovski Petar
- 39. Associate professor Gavriloski Viktor
- 40. Associate professor Danev Darko
- 41. Associate professor Gurkov Igor
- 42. Associate professor Markov Zoran
- 43. Associate professor Stojmanovski Viktor
- 44. Associate professor Tasevski Done
- 45. Associate professor Filkoski Risto
- 46. Associate professor Mickoski Hristijan
- 47. Assistant Professor Babunski Darko

- 48. Assistant Professor Dimitrovski Dame
- 49. Assistant Professor Lazarevska Ana
- 50. Assistant Professor Kostik Aleksandar
- 51. Assistant Professor Mojsovski Filip
- 52. Assistant Professor Celakoska Emilija
- 53. Assistant Professor Sarevski Vasko
- 54. Assistant Professor Zaev Emil
- 55. Assistant Professor Tomov Mite
- 56. Assistant Professor Prangoski Bojan
- 57. Assistant Professor Jovanoski D.Bojan
- 58. Assistant Professor Ile Mircevski
- 59. Assistant Professor Kristina Jakimovska

In a realization of the study program Sustainable energy and environment the following teachers take place:

- 1. Professor Armenski Slave
- 2. Professor Dimitrovski Mile
- 3. Professor Chakmakov Dusan
- 4. Professor Tuneski Atanasko
- 5. Professor Malcheski Aleksa
- 6. Professor Stojkovski Valentino
- 7. Professor Tuneski Nikola
- 8. Professor Atanas Kochov
- 9. Associate professor Tashevski Done
- 10. Associate professor Filkoski Risto
- 11. Associate professor Markov Zoran
- 12. Assistant professor Lazarevska Ana
- 13. Assistant professor Dimitrovski Dame
- 14. Assistant professor Babunski Darko
- 15. Assistant professor Zaev Emil
- 16. Assistant professor Celakoska Emilija
- 17. Assistant professor Prangoski Bojan

If there is needed, teachers from other organizational units (institute, district) at faculty of Mechanical engineering – Skopje and from other high educative institutions are included in realization of this program in order with the legal procedure for selection of course programs and engaging teachers in the course program.

Add	l. 4	Ir		the teachers that lectors and are mento				
1.	Name	(First,	Last)	Slave Armenski				
2.	Date	of birth	<u> </u>	04.02.1950				
3.	Scien	tific deg	gree / Title	Ph.D.				
4.			cientific degree	Ph.D. in Technical S	ciences			
5.			itution of the	Education	Year		Institution	
	scient	tific deg	ree	BSc	1974		Faculty of Mechanical Engineering-Skopje	
				MSc	1980		University of Belgrade	
				PhD	1987		University of Skopje Faculty of Mechanical Engineering	
6.	Area,	field and particular Area Field			Specialty			
		alty of n	naster of science	Technical Sciences	Thermal Power Plant		Thermal Energy	
7.	Area,	field an	d area of	Area	Field		Specialty	
	docto	ral degr	ee	Technical Sciences Non-Conventional TPP		nal	Thermal Energy	
8.			state the	Institution		Title a	and area	
	works		nere he/she e title and area in ed	University "Ss Kiril Metodius" Faculty of Engineering Skopje		Full p	rofessor	
9.	List o	of course	es that the teacher	is lecturing separately	for first, seco	nd and	third cycle	
	9.1.			eacher is lecturing in t			Ť	
		No.	Course		Study progra	am/inst	itution	
		1.	Thermo-technical Devices	al Machines and	PI, MZKI ar	nd MH	Γ academic	
		2.	Thermo-technical Devices	al Machines and	IND, ZDK, studies	HA and	l PINF professional	
		3	Thermal Machir	nes and Devices		MV, N	ISKI, IIM, MV,	
		4	Fundamental of	Renewable Energy	· ·	MV, M	ISKI, IIM, MV,	
		5	Thermal Power	Plants	EE			
		6		nal Energy sources	EE			
	9.2.	_				cle		
	<del></del> -		Course	eacher is lecturing in the second cycle  Study program/				

		1.	Combined Heat and Power	Plant	Full time-TI		
		2.	Geothermal Heat Pump		Full time-TI		
		3	Non-conventional Thermal	l Plant	Full time-TI and EE	,	
		4	Modern Power Systems		Full time-EE		
	9.3.	List	of courses that the teacher is le	ecturing in	the third cycle		
		No.	Course		Study program/insti	tution	
		1.	Non-conventional Thermal	l Plant	TI		
		2.	Rnewable Energy-thermal		TI		
			transformation				
		3.	Modern Power Systems		TI		
10.	Selecte	ed wor	k in the past five years				
	10.1.	Relev	vant scientific printed paper (v	<u> </u>			
		No.	Author	Title		Publisher/year	
		1.	S. Armenski		on of Energy	"ENERGETICS	
					of Waste Biomass	2010, Ohrid, 07-	
					iculture and	09.10.2010, Book	
				Livestock		2, pp.665-672	
				Macedon		(/E) IED CETICG	
		2.	V. Stojanov, S.Armenski	"Solar an	•	"ENERGETICS	
				_	tivePower Plant for	2010, Ohrid, 07-	
				Production	y and Heat Energy	09.10.2010, Book	
		3.	S. Armenski		Biomass Potential	2, pp.691-700 Kochani 27-28	
		3.	S. Affileliski			November 2013	
				for Energy Production in Kochani Valley"		November 2013	
		4.	S. Armenski, R.Filkoski		nal Energy-	Bulletin "Presing",	
		''	S. Timenski, T. Timoski		e, renewable,	No 3, pp. 3-15,	
					and receptional"	June 2011	
		5.	S. Armenski		otential of waste	"ENERGETICS	
					he Sout-West	2014, Struga, 16-	
				planning	region of	18.10.2014, Book	
				R.Macedo	onia	1, pp.429-440	
	10.2.	Partic	cipation in scientific national	and interna	ational projects (up to		
		No.	Author	Title		Publisher/year	
		1.	S. Armenski, K. Dimitrov,	_	al solid waste as	Ministry of	
			K. Davkova, D. Tasevski		ource in R. of	Education and	
			and O. Dimitrov	Macedon	ia"	Science of R, of	
						Macedonia, Skopje,	
				0 11	•	September 2004	
		2.	S. Armenski		Assurance and	TEMPUS project	
					tion System	Брошура 2007	
	10.2	Delini	ad basiles in the 1t fire		QAASNet		
	10.3.	Printe	ed books in the last five years	(up to 5)			

	1	ı				1			
		No.	Author	Title		Publisher/year			
		1.	S. Armenski		-conventional Thermal	NIP "Studentski			
				Pow	er Plant"	Zbor", pp. 493 стр,			
						Skopje, October 2001			
		2.	S. Armenski	Bion	nass Energy	Alfa-94, pp.241, Skopje April 2009			
		3.	S. Armenski		mo-technical machines devices-second edition	Alfa-94, Skopje, 2010, pp.354			
		4.	S. Armenski		r Energy-thermal formation	second edition book, Publisher "Jofi-sken"-Skopje, pp. 293, Skopje, May 2012			
		5.	S. Armenski		ewable <i>–Sustainable</i> egy Sources	third edition, book, University "Ss Ciryl and Methodius", Publisher "Boro- grafica"-Skopje, pp. 390, Skopje, February 2013			
	10.4.	Printed professional papers in the last 5 years (up to 5)							
	101	No.	Author	Title		Publisher/year			
		1.	S. Armenski: D.Tasevski	FOS GRA KAV	LACEMENT OF THE SIL FUEL WITH APE RESIDUES IN ADARCI NICIPALITY	Norsk Energy", NGO "Center for climate changes", Skopje, September 2009			
		2.	S.Armenski, K.Popovski	Bion	nass energy potential in Macedonia	FP7 Grand Agriment No 213417, 2008-2010			
		3.	R.Filkoski, D.Tashevski, S.Armenski. Z. Markov	inabi cons gas t non- insta com	essional expertise for the ility for hot start, tructive problem of the urbine, latent and other overhaul defects during llation and missioning of TE-TO AD	Skopje, December 2013			
				Skor	nje				
11.	Super	vision	(mentorship) of undergradua		ŭ .	l idents			
11.	Superville 11.1.		 (mentorship) of undergradua rgraduate		· ·	dents			
11.			rgraduate		ter and doctoral studies stu	idents			

12.	For me	entors of	f doctoral thesis, selected	wor	k for the last four / fi	ve years		
	12.1.	Proof	of printed scientific pape	rs in	international scientif	ic journals	or internati	onal
		public	ations in the related field	(up	to 6) in the past five	years		
	No. Author Title			Publisher/	'year			
		1.						
	12.2. Proof of at least two printed scientific papers in international scientific jo							
		have in	mpact factor in the related	d fiel	ld in the past five yea	rs		
		No.	Author		Title		Publisher/year	
		1.						
	12.3.	Proof	of at least three internation	nal 1	neetings' participation	on in the pa	st four year	îs .
		No.	Author	Titl	e	Internatio	nal	year
						meeting/c	onference	
		1.						

Add	1. 4		Information about the teachers that lecture at the first, second and third study							
		pr	ogram and are mentor	rs on the do	octoral th	nesis				
1.	Name (Fi	rst, Last)	Mile Dimitrovski							
2.	Date of b	irth	27.05.1950							
3.	Scientific	degree / Title	Ph.D.							
4.	Title of th	ne scientific degree	Ph.D. in Technical Sc	iences						
5.	Year and	institution of the	Education	Year		Institution				
	scientific	degree	PhD.	1988		UKIM, Faculty of				
						Mechanical				
						engineering				
			Magister of	1986		UKIM, Faculty of				
			technical sciences			Mechanical				
						engineering				
			Mechanical engineer	1975		UKIM, Faculty of				
						Mechanical				
						engineering				
6.	Area, fiel	d and particular	Area	Field		Specialty				
	specialty	of master of science	Energetic,	ICE Engir	ies	IC engines and				
	degree		Mechanical			environment				
			engineering							
7.	Area, fiel	d and area of	Area	Field		Specialty				
	doctoral d	degree	Energetic,	ICE Engir	nes	IC engines and				
		Mechanical				environment				
			engineering							
8.	If employ	ved, state the	Institution		Title an	d area				
	institution	n where he/she	University of St. Cyril	l and	Professor: Thermal energy					

	works and the title and area in which is named Methodius in Skopje, Fa						product	ion department	
						Ŭ	1 1.	1 ' 1 1	
9.			es that the teacher					third cycle	
	9.1.		f courses that the	teacher 1s I	ecturing in			··	
		No.	Course	f IC	•	Study program/institution			
		1. Design and tuning of IC eng			igines				
		2.	Fuels and engine	es		All, MFS			
		3.	ICE Engines	•		EE, MFS			
	0.2	4.	ICE engines des			TI, MFS			
	9.2.		f courses that the	teacher is l	ecturing in	-			
		No.	Course			Study progra	am/instit	ution	
		1.		l cours od ICE Engines I		EE, MFS			
		2.	Advanced couse			BZPR, MFS	5		
		3.	IC engines adva			TI, MFS			
	9.3. List of courses that the teacher		teacher is l	ecturing in					
		No.	Course			Study program/institution		ution	
		1.							
10.	Select		in the past five y						
	10.1.	Relev	ant scientific print	ted paper (1	up to 5)				
		No.	Author		Title			Publisher/year	
		1.	Mile Dimitrovsk	i at all.		lationa strategy for Road		Combustion	
						Traffic Safety in Rep. Of		Institute, Western	
					Macedon	ia 2009 - 2014	4	States, USA, 2008,	
								University of	
								Southern California	
		2.	Mile Dimitrovsk	i at all		ationa strateg	_	Parlament of Rep Of	
						ffic Safety in	Rep. of	Macedonia	
						2015 -2020			
		3.	Mile Dimitrovsk	i		ons of Air Poll		ME, MTC	
						d Transport ar	nd Its		
					_	ntation in the			
					Macedon				
		4.	Mile Dimitrovsk	i, Zpran		ization and its	_	JEPE	
			Shapuric,			raffic safety a	nd		
					environm				
		5.	Mile Dimitrovsk	ki, Directions for					
					-	of Macedoni			
					South Eas	st gas streams	S		

10.2.	Partio	cipation in scientific nationa	l and international projects (up to	5)			
	No.	Author	Title	Publisher/year			
	1.	Mile Dimitrovski,	Adjustment of the car park -	Ministry of			
		Vanco Donev,	buses JSP and the use of eco	education and			
		Elenior Nikolov,	fuels, natural gas,	science, Skopje			
		Dame Dimitrovski	development project	2003			
	2.	Dame M. Dimitrovski	Using of Biogas for	Project for World			
			cogenerative systems at	Scientific			
			sanitary landfill - Drisla	Organization pages			
			Skopje	6+52			
	3.	Dame Dimitrovski,	Lowering the influence of	National Agency for			
		Sonja Filipovska,	using day lights and a mean to	Traffic Safety on the			
			reduce the emission from	roads in 2009, Study			
			small vehicles				
	4.	Dame Dimitrovski,	Emissions and Imissions in	National Agency for			
			the city of Tetovo, traffic	Traffic Safety on the			
			development influence on the	roads in 2008, Study			
			imissions				
10.3.	Printed books in the last five years (up to 5)						
	No.	Author	Title	Publisher/year			
	1.	Mile Dimitrovski	Publication: Agro Energy	Study Agro, Energy			
		Dame Dimitrovski	study possibilities for the use	Study nr. 008/2009			
			of renewable energy sources	– Biogas 2009			
			in rural areas in the country				
10.4.		ed professional papers in the	<u> </u>				
	No.	Author	Title	Publisher/year			
	1.	Mile Dimitrovski	Awarded labor original	International Gas			
		Dame Dimitrovski	research results published in	conference,			
			scientific reference /	Beograd, Serbia,			
			professional journal with an	2007			
			international editorial board:				
			Ecological benefits of NG				
			buses in Skopje, Awarded				
			article				
	2.	Z. Markov,	Development of Gas	Proceedings of the			
		D.Dimitrovski, V.Aleksic	Distribution Network for the	Institute of Gas			
			city of Kumanovo –	Technology			
	1		Challenges and Solutions,				

ernational Gas onference, rajevo 2012		
onference,		
onference,		
,		
rajevo 2012		
1 01 11 2010		
mak, Ohrid, 2010		
TP		
ts		
nternational		
to 6) in the past five years		
blisher/year		
echanical		
gineering –		
ientific journal		
1 32-1, 2014		
journals that have		
blisher/year		
ırnal of		
vironmental		
otection and		
ology, 2013,		
1.3A		
emical Engineering		
ansactions, Journal		
SN: 19749791		
T b ie b ie b ie b ie colored		

	4.	Dame Dimitrovski, Mi	le	Model for calculati	ion of JEPE, 2014		14,
		Dimitrovski, Antonio		NOx from public to	ransport in accepted		for
		Jovanovski		the city of Skopje	publishii		ıg, vol 4
12.3.	Proof	of at least three internation	of at least three international meetings' participat			st four yea	ars
	No.	Author	Titl	e	Internation	ıal	year
					meeting/co	onference	
	1.	D. Dimitrovski,	Pol	lution from Diesel	1 <sup>st</sup> Internat	ional	12-14
		M. Dimitrovski,	Eng	gines to Increase of	Medical		September
		E. Kitanovska,	Imp	orted Vehicles in	Conference		2014.
		D. Tashevski:	FY	R-Macedonia.	"Environment and		
			(IO	C - 2 <sup>nd</sup> Award)	Public Health"		
					MED ENV	7 2014,	
					Mamaia, R	Romania,	
	2.	D. Dimitrovski,	Bio	gas – Overview of	16 <sup>th</sup> Sympo	osium on	22-25
		M. Dimitrovski,	the	Possibilities for	Thermal S	cience	October,
		G. Popsimonova,	Imp	elementation in the	and Engine	eering of	2013.
		D. Tashevski	Macedonian		Serbia –		
			Agı	ricultural Sector.	SIMTERM	1 2013,	
			(IO	C)	p. 11, Soko	obanja,	
					Serbia,		

Add	l. 4		out the teachers that program and are me		rst, second and third study toral thesis				
1.	Name (Fi		Dushan Chakmakov						
2.	Date of b	irth	18.02.1959						
3.	Scientific	degree / Title	Ph.D.						
4.	Title of the degree	ne scientific	Ph.D. in Technical S	ciences/Compute	r Science				
5.	Year and	institution of the	Education	Year	Institution				
	scientific	degree	B.S. in	1982	Faculty of Mathematics,				
			Mathematics and		University Ss. Cyril and				
			Informatics		Methodius, Skopje				
			M.S. in Computer	1988	Faculty of Electrical				
			Science		Engineering and Computer				
					Science, Skopje				
			Ph.D. in Computer	1992	Faculty of Electrical				
			Science		Engineering and Computer				
					Science, Skopje				
6.	Area, fiel	d and particular	Area	Field	Specialty				
		of master of	Informatics Programming Compilers						
	science d	egree		Languages					

7.	Area,	field aı	nd area of	Area		Field	Specialty		
	doctor	al degi	ee	Informati	ics	Information	Searching in Multimedia		
		_				Systems	Information		
8.	_	•	state the	Institutio	n		Title and area		
			here he/she	Faculty of	f Mechani	cal Engineering,	Professor		
			e title and	Dept. of Mathematics and					
	area 11	n which	n is named	Informatics, University "Ss. Cyril					
				and Meth	nodius"				
9.						itely for first, secon	nd and third cycle		
	9.1.			ne teacher	is lecturing	s lecturing in the first cycle			
		No.	Course			Study program/in			
		<ol> <li>Data Bases</li> <li>Probability at</li> </ol>					natics/Fac. of Mechanical		
						Eng.			
				nd Statistic	es	_	ering and Management/ Fac.		
						of Mechanical Er			
		3.	Programming	g Language	es		natics/Fac. of Mechanical		
	0.0				Eng.				
	9.2.		_	courses that the teacher is lecturing					
		No. Course			.•	Study program/in			
		1.	Selected Top		rmatics	All/ Fac. of Mech	Ţ		
	0.2	2.	System Softw		. 1		c. of Mechanical Eng.		
	9.3. List of courses that the No. Course			ne teacher	1s lecturing	, , , , , , , , , , , , , , , , , , , ,			
		1.	Course			Study program/in			
		1.	Advanced Co Programming	-		All/ Fac. of Mechanical Eng.			
		2.	Artificial Inte		nd	All/ Fac. of Mechanical Eng.			
10.	Selecti		k in the past five		Iu	All/ Fac. Of Wieci	ianicai Eng.		
10.	10.1.		ant scientific p		er (up to 5)				
		No.	Author	1_1_	Title		Publisher/year		
		1.	Celakoska E.,		Lorentz I	Link Problem and	Proceedings of the Fourth		
			Cakmakov D.		Solutions		Int. Scientific Conference		
							FMNS, Blagoevgrad,		
							Vol.1, 2011, 16-21.		
	10.2.	Partic	cipation in scien	ntific natio	nal and int	ternational projects			
		No.	Author		Title		Publisher/year		
		1.							
	10.3.		ed books in the	last five ye		5)			
		No.	Author		Title		Publisher/year		
		1.	Chakmakov D	<b>).</b>	Probabili	ty and Statistics	University Ss. Cyril and		
					for Engin	neers	Methodius, Skopje, (in		
							Print)		
	10.4.		ed professional	papers in t		ears (up to 5)	1		
		No.	Author		Title		Publisher/year		

		1.							
11.	Super	vision (	mentorship) of underg	graduate	e, master and doctora	l stud	dies students		
	11.1.	Under	graduate		/				
	11.2.	Master	r		/				
	11.3.	Doctor	ral		/				
12.	For me	For mentors of doctoral thesis, selected work for the last four / five years							
	12.1.		Proof of printed scientific papers in international scientific journals or international						
		public	tions in the related field (up to 6) in the past five years						
		No.	Author Tit		le		Publisher/year		
		1.							
	12.2.		of at least two printed			ional	scientific journal	s that have	
		impac	t factor in the related	field in	the past five years				
		No.	Author	Ti	itle		Publisher/year		
		1.							
	12.3.	Proof	of at least three intern	of at least three international meetings' participation in the past four years					
		No.	Author	Title			rnational	year	
						mee	eting/conference		
		1.							

Add	1. 4	Information about the teachers that lecture at the first, second and third study program and are mentors on the doctoral thesis						
1.	Name (Fi	rst, Last)	Atanasko Tuneski					
2.	Date of b	irth	22.01.1965					
3.	Scientific	degree / Title	Ph.D./ Professo	r				
4.	Title of th	ne scientific degree	Ph.D. in Techni	cal Sciences				
5.	Year and	institution of the	Education	Year	Institution			
	scientific	degree	Ph.D	1997	Faculty of Mechanical			
					Engineering - Skopje			
			M.Sc	1993	Faculty of Mechanical			
					Engineering - Skopje			
			B.Sc	1989	Faculty of Mechanical			
					Engineering - Skopje			
6.	Area, fiel	d and particular	Area	Field	Specialty			
	specialty	of master of	Technical	Mechanical	Control Systems			
	science d	egree	Sciences	Engineering				
7.	Area, fiel	d and area of	Area	Field	Specialty			
	doctoral d	legree	Technical	Mechanical	Control Systems			
			Sciences	Engineering				
8.		ved, state the	Institution		Title and area			
	institution where he/she works and the title and area in which is named		Faculty of Med Engineering –S		Full Professor, Automation			
9.	. List of courses that the teacher is lecturing separately for first, second and third cycle							

	9.1.	1. List of courses that the teacher is lecturing in the first cycle						
		No.	Course	<u> </u>		am/institution		
		1.	Systems and Control			s at the Faculty of Mechanical		
					Engineering			
		2.	Optimal Energetic System	ns		nd Ecology/ Faculty of		
					Mechanical Engineering – Skopje			
		3.	Environmental Monitorin	ig and	Environmental and Resources Engineering Studies			
			Control	c Control Systems				
		4.	Automatic Control System			and Control Systems, Faculty of		
			D: :/ 10 / 10 /			Engineering – Skopje		
		5.	Digital Control Systems			and Control Systems, Faculty of		
	9.2.	Listo	of courses that the teacher is	lacturing		Engineering – Skopje		
	9.2.	No.	courses that the teacher is lecturing in Course			am/institution		
					and Control Systems, Faculty of			
		1.	Control of Dynamic Syst	7 7		Engineering – Skopje		
		2.	Environmental Systems A	mental Systems Analysis		tal and Resources Engineering		
				J	Studies			
	9.3.	3. List of courses that the teacher is lecturing i						
		No.	Course		Study progra	am/institution		
		1.	Advanced Control of Dyn	namic	Mechanical engineering/Faculty of			
			Systems		Mechanical	Engineering		
				1 0	36 1 1 1			
		2.	Advanced Computer Con	itrol of	Mechanical engineering/Faculty of			
10.	Calcat	od morl	Systems and Processes k in the past five years		Mechanical Engineering			
10.	10.1.		vant scientific printed paper	(up to 5)				
	10.1.	No.	Author	Title		Publisher/year		
		1.	Babunski D, Tuneski A.,		on of load	IEEE Conference on		
		1.	Zaev E.	rejection		Embedded Computing		
				nonlinear		(MECO), June 2012, Bar,		
					ant model	Monte Negro		
				with mix	ed mode	_		
				nonlinear	controller			
						and and		
		2.	A.Tuneski et al.		nent of an	SEFI 42 <sup>nd</sup> Annual Conference,		
					nental and	September 2014,		
				Resource Engineer		Birmingham, United Kingdom		
				Learning	-			
				Learning				
		3.	A.Tuneski et al.	Environn	nental	SEFI 41 <sup>st</sup> Annual Conference,		
					ng curricula	September 2013, Leuven,		
				developn	-	Belgium		

		4.	Emil Zaev, Gerhard Rath, Atanasko Tuneski et al.	HPP Simulator for Real-Time Simulation and SCADA Software Testing	6th Annual SEE Conference: Infusing Research and Knowledge in South-East Europe, September, 2011, Thessaloniki, Greece
	Environmental Resources Engineering			SEFI 40 <sup>th</sup> Annual Conference, September 2012, Thessaloniki, Greece	
	10.2.	Partic	cipation in scientific national	al and international proje	ects (up to 5)
		No.	Author	Title	Publisher/year
		1.	A.Tuneski (Coordinator)	Development of Environmental and Resources Engineering Learning	EU Directorate for Education and Science, TEMPUS IV
		2.	A.Tuneski (Coordinator)	Monitoring and Improving Rivers in Vardar/Axios Watershed	NATO Science for Peace Project, 2006-2010, SfP 981877
	10.3.	Printe	ed books in the last five year	rs (up to 5)	
		No.	Author	Title	Publisher/year
		1.	A. Tuneski, E. Caporali	Towards a New	Firenze University Press, 2009
			_	Curriculum: The DEREC Experience	
	10.4.	Printe	ed professional papers in the	e last 5 years (up to 5)	
		No.	Author	Title	Publisher/year
		1.			
11.	Super		(mentorship) of undergradu		studies students
	11.1.		rgraduate	more than 20	
		Maste		3 (three)	
	11.3.	Docto		2 (two)	
			of doctoral thesis, selected v		5
12.	12.1.		of printed scientific papers		
			cations in the related field (	<u> </u>	
		No.	Author	Title	Publisher/year
		1.	A.Tuneski et al.	Design of Robust	Journal of Energetics, Journal
				Control Law for	of Association of Energy
				Hydroturbine and SCADA Simulation	Sector, No.2, year XIII, March 2011, ISSN 0354-8651, UDC:
					621.224.011:62-5, pp.85-89.
		2.	A.Tuneski	Adaptive Control of	ROBOMAC publication,
		2.	11.1 uncori	Multiple Robots	published by IEEE Branch
		l		1.1diupie 1000ts	Pasible of IEEE Dialien

12.2.	No. 1. Proof	t factor in the related fi Author of at least three interna	Simulation of load E. rejection on a nonlinear Hydro Power Plant model with mixed mode nonlinear controller  Development of an Environmental and Resources Engineering Learning  Environmental engineering curricula development		ation	Publisher/year	echnology, nals that have
	No. 1.	Author  Babunski D,  Tuneski A., Zaev E.			meeting/conference  IEEE Conference 2012 on Embedded Computing (MECO), June 2012,Monte Negro		Year 2012
	2.	A.Tuneski et al.			SEFI 42 <sup>nd</sup> Annual Conference, September 2014, Birmingham, United Kingdom		2014
	3.	A.Tuneski et al.			Co Se	SEFI 41 <sup>st</sup> Annual 2013 Conference, September 2013, Leuven, Belgium	
	4.	Emil Zaev, Gerhard Rath, Atanasko Tuneski et al.	Rea	P Simulator for al-Time Simulation I SCADA Software sting	Co Inf and So 20	Annual SEE inference: fusing Research d Knowledge in uth-East Europe, 11, Thessaloniki, eece	2011

Add	. 4		t the teachers that lect ogram and are mentor		second and third study Il thesis			
1.	Name (Fi	irst, Last)	Aleksa Malcheski					
2.	Date of b	irth	12.03.1964					
3.	Scientific	degree / Title	degree / Title Ph.D.					
4.	Title of tl	he scientific degree	Ph.D. in mathematical	Ph.D. in mathematical sciences				
5.	Year and	institution of the	Education	Year	Institution			
	scientific degree		B.S. in Mathematics	1988	Faculty of Science,			
					University Ss. Cyril			
					and Methodius,			

								Skopje
				M.Sc. in Mathema	Theoretical tics	1996		Faculty of Science, University Ss. Cyril and Methodius, Skopje
				Ph.D. in Mathema	Theoretical atics	2002		Faculty of Science, University of Novi Sad, Novi Sad, Serbia
6.	Area,	field ar	nd particular	Area		Field		Specialty
	specia	lty of r	naster of science	Mathema	itics	Complex		Bounded analytic
	degree					Analysis		functions
7.	Area,	field ar	nd area of	Area		Field		Specialty
	doctor	al degr	ree	Mathema	tics	Functiona		Banal spaces, n-
						analysis		normed spaces
8.			state the	Institutio	n		Title a	nd area
			here he/she works	Faculty of	of Mechanica	าไ	Full P	rofessor,
			and area in which	Engineer				matics
	is nan	ned		_	Dept. of Mathematics and			
					ics, Universi			
					l Methodius'			
9.	List of	f course	es that the teacher i				nd and	third cycle
	9.1.		of courses that the to					<b>,</b>
		No.	Course			Study progr		itution
		1.	Mathematics 1			All on MFS		
		2.	Mathematics 2			All on MFS		
	9.2.	List o	of courses that the to	eacher is le				
		No.	Course			Study progr		itution
		1.	Numerical mathe	ematics		All on MFS		
		2.	Methods of optin			All on MFS		
	9.3.		of courses that the to					
		No.	Course			Study progr		itution
		1.	/			/		
10.	Selecte	ed worl	k in the past five ye	ears				
- 3.	10.1.		ant scientific print		ip to 5)			
		No.	Author	r r (*	Title			Publisher/year
		1.	Aleksa Malchesk	i. Vesna		rization of $n$	-semi	Mathematica Mathematica
			Manova Erakovik	*	norm	01. 01 //		Balkanica, New
								series, Vol.25,2011,
								Fasc.4, Bulgaria
		2.	Aleksa Malchesk	i, Vesna	Some 2-sul	bspaces of 2	-space	Mathematicki Bilten,
				*		r	Τ	Математички
		2.	Manova Erakovik	*	Some 2-sui	ospaces of 2	-space	

				Македонија, 2011
	3.	Aleksa Malcheski, Vesna Manova Erakovik	An extend of the type of Hanh-Banach for skew-	Математички Билтен, 35 (LXI),
		Withova Erakovik	symmetric linear forms	Македонија, 2011
	4.	Aleksa Malcheski	Hahn Banach Theorem for	Proceedings of the 5
			branch 2-subspaces	congres of
				mathmaticinas of Macedonia, 23-
				27.09.2014
	5.	Aleksa Malcheski, Vesna	Hahn Banach Theorem for	Proceedings of the 5
		Manova Erakovik	cyclic 2-subspaces	congres of
				mathmaticinas of
				Macedonia, 23-
10.2.	Dorti	ingtion in agigntific national	and international projects (up to	27.09.2014
10.2.	No.	Author	and international projects (up to Title	Publisher/year
	1.	Aleksa Malcheski, Donco	Students' Institute of	2013, (MANU)
	1.	Dimoski, Gjorgji	Mathematics and Informatics	2013, (МИТО)
		Markoski, Jasmina		
		Markoska, Marija Mihova		
	2.	Vesna Manova Erakovik,	"The boundary values of the	2006-2009, Institute
		Aleksa Malcheski and	analytic functions and	of mathematics,
		other	distributions and	Faculty of Natural
			approximations in the sense	sciences and
10.2	D ' 4	11 1 ' (1 1 (6"	of distributions"	Mathematics
10.3.		ed books in the last five years Author	Dublish on/yyoon	
	No. 1.	Aleksa Malcehski and	Title Competitions in mathematics	Publisher/year SMM, 2014
	1.	other	in primary education 2006- 2013	SWIWI, 2014
	2.	Aleksa Malcheski, Risto Malcheski, Vesna Manova Erakovic, Gjorgji Markoski	Sigma-Mails, Preparatory tasks for mathematical competitions	SMM, 2012
	3.	Aleksa Malcheski, Risto Malcheski, Vesna Manova Erakovic, Gjorgji Markoski	Sigma-Mails, Box competition tasks 1006-1260	SMM, 2012
	4.	Aleksa Malcheski, Risto Malcheski, Vesna Manova Erakovic, Gjorgji Markoski	Sigma-Mails, Box competition tasks, 1-192	SMM, 2012
	5.	Aleksa Malcheski	Sigma-Mails, regional competitions in mathematics in secondary education,	SMM, 2012

					1978-2012							
	10.4.	Printe	Printed professional papers in the last 5 years (up to 5)									
		No.	Author		Title		Publisher/	year				
		1.										
11.	Super	vision (	mentorship) of undergrad	uate.	, master and doctor	al studies stu	ıdents					
	11.1.	Under	graduate		/							
	11.2.	Maste	r		1							
	11.3.	Docto	ral		/							
12.	For me	entors o	of doctoral thesis, selected	wor	k for the last four /	five years						
	12.1.		of printed scientific paper				or internati	onal				
		public	cations in the related field	(up	to 6) in the past five	e years						
		No.	Author		Title		Publisher/year					
		1.										
	12.2.	Proof	of at least two printed scient	entif	ïc papers in interna	tional scient	ific journals	s that have				
		impac	t factor in the related field	l in t	the past five years							
		No.	Author		Title		Publisher/	year				
		1.										
	12.3.	Proof	of of at least three international meetings' participation in the past four years									
		No.	Author	Titl	e	International		year				
						meeting/o	conference					
		1.										

Add	. 4		t the teachers that lectrogram and are mentor	•	· ·
1.	Name (Fi	rst, Last)	Valentino Stojkovski		
2.	Date of b	irth	14.10.1964		
3.	Scientific	degree / Title	Ph.D.		
4.	Title of tl	ne scientific degree	Ph.D. in Technical Sci	ences	
5.	Year and	institution of the	Education	Year	Institution
	scientific	degree	Ph.D in Mechanical	2001	Faculty of
			Engineering		Mechanical
					engineering - Skopje
			M. Sc. in Mechanical	1995	Faculty of
			Engineering		Mechanical
					engineering - Skopje
			B. Sc. in Mechanical	1989	Faculty of
			Engineering		Mechanical
					engineering - Skopje
6.		d and particular	Area	Field	Specialty
	specialty	of master of science	Technical-	Mechanical	Fluid mechanic and
	degree		technological		fluid flow systems
			sciences		

7.	Area, field and area of		Area		Field		Specialty	
	doctor	al degr	ee	Technical	_	Mechanical		Fluid mechanic and
		C		technologi	ical			fluid flow systems
				sciences				J
8.	If emp	If employed, state the					Title a	nd area
	institu	tion wh	nere he/she	University	of Ss Cyril	and	Profes	sor, Fluid flow and
			e title and area in		s, faculty of	una		llic machines
	which	is nam	ed		al engineerir	าด	ilyaraa	
9.	List of	f course	es that the teacher				nd and	third cycle
	9.1.		f courses that the t					•
		No.	Course			Study progr		tution
		1.	Fluid mechanics	<u> </u>				/I,MHT,AUS/ FME
		2.	Fluid dynamics			HIMV / FM		, ,
		3.	Fluid flow meas			HIMV,AUS		
		4.	Gas systems			EE/FME	,	
		5.	Design of hydra	ulic machin	es and	HIMV/FME		
			systems					
	9.2.	List o	f courses that the t	teacher is le	cturing in th	e second cy	cle	
		No.	Course			Study program/institution		
		1.	Modeling and si			AFI/FME		
				fluid engineering				
		2.		nitoring and data base		AFI / FME		
		3.			s of fluid mechanics AFI /FME			
		4.	Fluid conveying			AFI/FME		
		5.	Pumps and pum	ps stations		AFI/FME		
		6.	Engineering exp	perimentation		EE/FME		
		7.	Design of hydro			EE/FME		
		8.	Protection and s	afety in hyd	afety in hydropower BZR/FM			
			plants and system	ms				
	9.3.	List o	f courses that the t	teacher is le	cturing in th	e third cycle	e	
		No.	Course			Study program/institution		
		1.	Experimental re			HIA / FME		
			mechanics and h					
		2.	Modeling and si	mulation in	fluid	HIA / FME		
			dynamic					
		<ul><li>3. Advance topics of fluid mechanics</li><li>4. Norms for protection of</li></ul>			HIA / FME			
					HIA / FME			
L		<u> </u>	environmental					
10.		ed work in the past five years						
	10.1.	-	ant scientific print	ed paper (u	<u> </u>			Γ =
		No.	Author		Title			Publisher/year
		1.	Valentino Stojko	vski,	-	correlation		
			Zvonimir Kostic		prediction of	n of the elutriation Vol.7, No.2, pp.43-		

			rate constant	58, 2003					
	2.	V.Stojkovski, Z.Kostic, A.Nospal	Dependence of the total entrainment flux upon the apparent and the total	Thermal Science, Vol.4, No.1, pp.65- 73, 2008					
			fluidization number						
10.2.	Participation in scientific national and international projects (up to 5)								
	No.	Author	Title	Publisher/year					
	1.	Noshpal A., Stojkovski V.,	Application of CAD and	Ministry of education					
		Markov Z.	CAX technologies in	and science of					
			electrical technique processes	Republic Macedonia					
		36.17	in energy and ecology	2006-2009					
	2.	M. Kosevski (Project	Numerical Simulation	Tempus CARDS					
		coord.), V.Stojkovski et al.	Program in Mechanical	JEP-19017, 2006-					
		ID ( 1' DE'II 1'	Engineering,	2009					
	3.	I.Petrovski, R.Filkovski,	Research and optimization of	Ministry of education					
		A.Nospal, V.Stojkovski et	thermal processes in thermo	and science of					
		at.	energetic equipment with	Republic Macedonia 2006-2009					
10.3.	Drint	ed books in the last five years	numerical analyses	2000-2009					
10.5.	No.	Author	Title	Publisher/year					
	1.	Autioi	Title	Publisher/year					
10.4.		ed professional papers in the l	act 5 years (up to 5)						
10.4.	No.	Author	Title	Publisher/year					
	1.	R.Filkovski, I.Petrovski,	Energy eficiencyand energy	14 THERMAL					
	1.	A.Nospal, V.Stojkovski	saving in industry and	SYMPOSIUM					
		71.1105pai, V.Stojkovski	services	SERBIA, 2009					
	2.	V.Stojkovski, Z.Kostic,	Criteria for assessing the	INTERNATIONAL					
	2.	A.Nospal, D.Tanurkov:	feasibility of small hydro	CONFERENCE:					
		Till tospai, B. Tallarko v.	power plant	ENERGY,2008					
	3.	V.Fustic, V.Stojkovski	EXPERTS' ANALYSIS OF	International council					
	.	et.al.	THE EQUIPMENT IN THE	on large electric					
			SMALL HYDRO POWER	systems Macedonian					
			PLANTS IN THE	national committee-					
			"TRANSFER" PHASE OF	Conference 2013					
			THE ROT PROJECT						
	4.	R.Filkovski, F.Stojkovski,	A CFD study of a solar	6 <sup>th</sup> International					
		V.Stojkovski	chimney power plant	conference on					
			operation	sustainable energy &					
				environmental					
				protection SEEP					
				2013, Maribor,					
				, - : - : - : - ;					
				Slovenia					
	5.	P.Popovski, V.Stojkovski, K.Najdenkovski	Method for measuring the guaranteed energy						

					ormance of smal	l hydro	Internation	
				pow	er plant		symposiui	
							Energetics	2014
11.	Super	vision (1	mentorship) of undergrade	uate, mas	ster and doctoral	studies stu	ıdents	
	11.1.	Underg	graduate		37			
	11.2.	Master	•		4			
	11.3.	Doctor	al		/			
12.	For me	entors o	f doctoral thesis, selected	work for	r the last four / fi	ve years		
	12.1.	Proof	of printed scientific paper	s in inter	rnational scientif	ic journals	or internati	onal
		public	ations in the related field	(up to 6)	in the past five	years		
		No.	Author	Tit	le		Publisher/year	
		1.						
	12.2.	Proof	of at least two printed scien	entific pa	apers in internation	onal scient	ific journals	s that have
		impact	t factor in the related field	l in the p	ast five years			
		No.	Author	Tit	le		Publisher/	year
		1.						
	12.3.	Proof	of at least three internatio	nal meet	ings' participation	on in the pa	ast four year	TS .
		No.	Author	Title Int		International		year
						meeting/c	conference	
		1.						

Add	. 4	Information	about the teachers that lecture	at the first, second an	d third study			
		program and	d are mentors on the doctoral th	nesis	-			
1.	Name	(First, Last)	Nikola Tuneski					
2.	Date o	f birth	16.07.1971					
3.	Scient Title	ific degree /	Ph.D.					
4.	Title o	f the fic degree	Ph.D. in mathematical sciences					
5.	Year a	ind	Education	Year	Institution			
	institu	tion of the	Ph.D. in mathematics	1994	University of			
	scienti	fic degree			Belgrade,			
					Serbia			
			M. Sc. in mathematics	1997	UKIM,			
					Macedonia			
			B. Sc. In Engineering	1999	UKIM,			
					Macedonia			
6.	Area,	field and	Area	Field	Specialty			
	particular specialty		Mathematics	Probability	Random			
	of mas	ster of			processes			
	scienc	e degree						

7.	Area, field and			Area Field			Specialty		
		f docto		Mathematics Comple			Complex		Geometric
	degree	e			analysis		function theory		
8.		oloyed,	state	Institutio	n		unui j sis		Title and area
		stitutio		THIS CITCALLO					Title and area
		he/she							F 11 F . C
		and th		Fo oultry o	of Machaniaal Engineer				Full Professor,
		ea in v		1	of Mechanical Engineer	_			Mathematics
	is nan			Ss. Cyril	and Methodius Univer	rsity in	Skopje		and informatics
9.					is lecturing separately			d third	cycle
	9.1.				teacher is lecturing in				
		No.		ourse			program/in	stitutior	1
		1.		athematics		all on			
		2.			Mathematics	all on			
	9.2.				teacher is lecturing in				
		No.		ourse			program/in	stitutior	1
		1.		•	nd Statistics	all on			
		2.			all on MFS				
	9.3.	-	of course	es that the	t the teacher is lecturing in the third cycle				
		No.		ourse	Study program/ins				
		1.			Application of Mathematical scie		ences ar	nd application	
					Subordinations				
		2.			nivalent Functions	Mathematical sciences and application			nd application
		L		d its Appli					
10.				past five y					
	10.1.				ted paper (up to 5)			- · · · ·	• .
		No.	Author		Title		**		sher/year
		1.	E. Alia	_	Some connections be				wi Publishing
			N. Tur	ieski	and α-convex function			Corpo	ration
					Applied Analysis, Vo		014,	2014	IN AD A COT
					Article ID 692327, 4	27, 4 pages.			IMPACT
								FACI	OR 1.102)
		2	N. Toss	a alri M	On functions that are	Ton over	مادا مدمانات	Hanat	tana I Inivansity
		2.	Darus	neski, M.				2012	tepe University
			Darus		with respect to N–syr		-	_	IMPACT
				Hacettepe Journal of Statistics, Vol. 41 (2)			`	OR 0.385)	
		275.		(2012)	, 2/1 –	PACI	OK 0.363)		
				dius of univalence of certain		Malay	vsian		
		Ponnusamy S.,						ematical Sciences	
	Tuneski N.		combination of univalent and analytic functions, <i>Bulletin of the Malaysian</i>			Societ			
				Mathematical Science			2012	,	
					35(2) (2012), 325–334.			IMPACT	
					(-) (-312), 525 55			`	OR 0.696)
L	1							1	

	ı									
		4.	Obradovic M. of analytic functions, Computers and Mathematics with Applications, 62 (2011), 3438–3445. (IMPACT 2.069)				FACTOR			
		5.	Irmak H., Bulboaca T., Tuneski N.	functions and Bazilev	Certain relations between α–convex type functions and Bazilevič type functions, <i>Applied Mathematics Letters</i> , Vol. 24 (12) (2011), 2010–2014.					
	10.2.	Partic	rination in scienti	ific national and intern	ational projects (up	to 5)				
	10.2.	No.	Author	Title	ational projects (up		Publisher/ year			
		1.								
	10.3.			st five years (up to 5)	Territ		I =			
		No.	Author		Title		Publisher/ year			
		1.	Tuneski, N., Jole	evska-Tuneska B.	Differential calcul	us	UKIM, 2011			
		2.	Tuneski, N., Jole	evska-Tuneska B.		UKIM, 2011				
		3.	Tuneski, N., Geo	orgieva-Celakoska E.	Introduction to M	ATLAB	the authors, 2010			
	10.4.	Printe	ed professional pa	pers in the last 5 years	s (up to 5)					
		No.	Author	Title			Publisher/ year			
		1.								
11.	Super	vision	(mentorship) of u	ndergraduate, master a	and doctoral studies	students	-			
	11.1.	Unde	rgraduate	/						
	11.2.	Maste		1						
	11.3.	Docto			its in progress					
12.				selected work for the						
	12.1.		-	fic papers in internation	•	us or interna	tional			
		Publi No.	Author	ted field (up to 6) in the Title	ie past five years		Publisher/			
		NO.	Author	Title			year			
		1.	Obradovic	Radius of univalence	e of certain combina	tion of	2012			
		1.	M.,		univalent and analytic functions, <i>Bulletin of the</i>					
			Ponnusamy	•	Malaysian Mathematical Sciences Society, (2)					
			S., Tuneski	35(2) (2012), 325–3		•				
			N.	0.696)						
				http://www.emis.de/	•					
		2.	Irmak H.,	Certain relations bet	ween α-convex type	functions	2011			

		Bulboaca	and Bazilevič type functions, <i>Applied Mathematics</i>				
		T., Tuneski	Letters, Vol. 24 (12) (2011), 2010–2014. (2010				
		N.	IMPACT FACTOR 1.155)				
			http://www.sciencedirect.com/science/journal/0893				
			<u>9659/24</u>				
	3.	Tuneski N., Obradovic M.	Some properties of certain expression of analytic functions, <i>Computers and Mathematics with Applications</i> , 62 9 (2011), 3438–3445. (IMPACT FACTOR 2.069) http://www.sciencedirect.com/science/journal/0898	2011			
			1221/62/9				
	4.	H. M. Srivastava, N. Tuneski, Emilija Georgieva– Celakoska	Some Distortion and Other Properties Associated with a Family of the <i>n</i> –Fold Symmetric Koebe Type Functions, <i>Australian Journal of Mathematical Analysis and Applications</i> , Vol. 9, Issue 2, Article 1, (2012) 1-17. <a href="http://ajmaa.org/Volumes/Volume%209%20Issue%202%202012.php">http://ajmaa.org/Volumes/Volume%209%20Issue%202%202012.php</a>	2012			
	5.	Tuneski, N.	On a Class of Functions Defined by Takahashi and Nunokawa, <i>Mathematica Balkanica</i> , Vol. 25 (1–2) (2011), 203–209. http://www.mathbalkanica.info/toc/cont2512.pdf	2011			
12.2.	Proof of at least two printed scientific papers in international scientific journals that have						
	impact factor in the related field in the past five years						
	No.	Author	Title	Publisher/			
	1.			year			
		F Aliana					
	1.	E. Aliaga, N. Tuneski	Some connections between class U and α-convex functions, <i>Abstract and Applied Analysis</i> , Volume 2014, Article ID 692327, 4 pages, <a href="http://dx.doi.org/10.1155/2014/692327">http://dx.doi.org/10.1155/2014/692327</a> . (2013 IMPACT FACTOR 1.102) <a href="http://www.hindawi.com/journals/aaa/2014/692327/">http://www.hindawi.com/journals/aaa/2014/692327/</a>	2014			
	2.		functions, Abstract and Applied Analysis, Volume 2014, Article ID 692327, 4 pages, <a href="http://dx.doi.org/10.1155/2014/692327">http://dx.doi.org/10.1155/2014/692327</a> . (2013 IMPACT FACTOR 1.102) <a href="http://www.hindawi.com/journals/aaa/2014/69232">http://www.hindawi.com/journals/aaa/2014/69232</a>				
12.3.	2.	N. Tuneski, M. Darus	functions, <i>Abstract and Applied Analysis</i> , Volume 2014, Article ID 692327, 4 pages, <a href="http://dx.doi.org/10.1155/2014/692327">http://dx.doi.org/10.1155/2014/692327</a> . (2013 IMPACT FACTOR 1.102) <a href="http://www.hindawi.com/journals/aaa/2014/692327/">http://www.hindawi.com/journals/aaa/2014/692327/</a> On functions that are Janowski starlike with respect to N–symmetric points, <i>Hacettepe Journal of Mathematics and Statistics</i> , Vol. 41 (2) (2012), 271 – 275. (2010 IMPACT FACTOR 0.385) <a href="http://www.hjms.hacettepe.edu.tr/issues/vol41_2.ht">http://www.hjms.hacettepe.edu.tr/issues/vol41_2.ht</a>	2014			

				meeting/conference	
	1.	N. Tuneski	Functions of bounded	International Short	2013
			turning	Joint Research	
				Workshop "Some	
				inequalities concerned	
				with the geometric	
				function theory", The	
				Research Institute for	
				Mathematical Sciences,	
				Kyoto University,	
				Kyoto, Japan, May 22 –	
				24, 2013.	
	2.	N. Tuneski, M.	Simple criteria for	"Geometric Function	2012
		Darus, E.	bounded turning of an	Theory and	
		Gelova	analytic function.	Applications'2012",	
				Ohrid, R. Macedonia,	
				August 27 – 31, 2012.	
	3	N. Tuneski	From inequalities to	13th Serbian	2014
			subordinations and back	Mathematical	
				Congress, Vrnjačka	
				Banja, May 22 - 25,	
				2014.	

Add	l. 4	Information about the teachers that lecture at the first, second and third study						
	ı	_	rogram and are ment	ors on the doctoral	thesis			
1.	Name (Fi	rst, Last)	Atanas Kochov					
2.	Date of b	irth	March 8, 1966					
3.	Scientific	degree / Title	Ph.D.					
4.	Title of the	ne scientific degree	Ph.D. in Technical Sc	eiences				
5.	Year and	institution of the	Education	Year	Institution			
	scientific	degree	Ph.D in Mechanical	2001	Faculty of Mechanical			
			Engineering		engineering - Skopje			
			M. Sc. in	1994	Faculty of Mechanical			
			Mechanical		engineering - Skopje			
			Engineering					
			B. Sc. in	1990	Faculty of Mechanical			
			Mechanical		engineering - Skopje			
			Engineering					
6.	Area, fiel	d and particular	Area	Field	Specialty			
	specialty of master of science		Technical sciences	Mechanical	FEA in metalforming			
	degree			engineering	processes			
7.	Area, fiel	d and area of	Area	Field	Specialty			

	doctor	al degr	ree	Technical	l sciences	Mechcanic engineerin		Composite materials	
8.	If emp	oloyed,	state the	Institutio	n	8	Title an	d area	
	works which	and the		Engineer	· · · · · · · · · · · · · · · · · · ·		Mechar	ne professor nical engineering	
9.			es that the teacher					third cycle	
	9.1.			eacher is 1	cher is lecturing in the first cycle				
	No. Course					Study progra			
		1.	Management of					g and management	
		2.	Computer aided		ng	Production e		<u> </u>	
		3.	Production proce		·•	Mechanical			
	0.2	4.	Technology of r			Mechanical		ing	
	9.2.	No.	f courses that the t	eacher is i	ecturing in	•		ution	
		1.	Management of	taahnalaa	E 7	Study progra		g and management	
		2.	Sustainable deve		y	Product life			
		3.	Cleaner product			Metrology	cycle illa	magement	
		4.	Modeling and si		of plastic	Production 6	engineeri	nσ	
		••	injection moldin		r prastro	1100001011 ongo			
	9.3.	List o	f courses that the t		ecturing in	the third cycl	le		
		No.	Course		<u> </u>	Study progra		ution	
		1.	Sustainable deve	elopment				g and management	
		2.	Managment of T	echnology	У	Industrial engineering and management			
			innovation						
10.			x in the past five yo						
	10.1.		ant scientific print	ed paper (					
		No.	Author		Title	1		Publisher/year	
		1.	A.Kochov:			ic and Techno		Fulbright Academy,	
						ns for Greater		Cambridge University,	
					TIGED)"	Revitalization	)II (S-	Boston, USA, February, 2008.	
		2.	A.Kochov:		"Macedo		7's -	pg. 89, Joint Actions	
		2.	71.IXOCHOV.		achiveme		future	on Climate Change	
						Competitve		Conference, Aalborg,	
						ough impleme		Danmark June 9-11,	
						nologies",		2009.	
		3.	A.Kochov:			ment of techn	ology -	European Roundtable	
						on technique	s for	for Sustainable	
				agro food		sector"		Consumption and	
								Production, Delft,	
								Netherland, October	
		1	A Machan D.D.	-:: a.	Law Cal		d., .4!	28-31, 2010.	
		4.	A.Kochov, B.Du	njic:	Low-Cart	on pro	duction	Regional Resource	

	5.	A.Kochov	Sustainable development supported by low carbon technologies in agro business	Efficient & Cleaner Production Net meeting of NVPCs and NCPPs from the European and Central Asian countries, 4th Nevsky International Ecological Congress, May 2011; St. Petersburg, Russia. ERSCP conference, Portoroz, Slovenia, October 2014
10.2.	Darti	cination in scientific nations	sector sand international projects (up to	5)
10.2.	No.	Author	Title	Publisher/year
	1.	A. Kochov, at all. UNIDO	Cleaner production technologies	2007-2010
	2.	A. Kochov, at all UNIDO	Resource efficiency and cleaner production	2010-2012
	3.	A. Kochov, at all UNIDO	Low carbon technologies	2011-2014
10.3.	Print	ed books in the last five years	s (up to 5)	
	No.	Author	Title	Publisher/year
	1.			
10.4.	Print	ed professional papers in the	last 5 years (up to 5)	
	No.	Author	Title	Publisher/year
	1.	A.Kochov:	"CDM projects implementation in SME in Macedonia",	Regional Conference on financing energy efficiency & RES project, energy week, Skopje, Macedonia, 2009.
	2.	A.Kochov:	"Management of technology - Low Carbon techniques for agro food sector",	European Roundtable for Sustainable Consumption and Production, Delft, Netherland, October 28-31, 2010.
	3.	A.Kochov:	Sustainable industrial development in the context of Low Carbon Society concept,	UNIDO-PREPARE conference: "SCP: How to make it possible" Kaunas, Lithuania, September 2011.

		4.	A.Kochov:	"	Green manufacturi	ng	2 <sup>nd</sup> Globa	al Network
				dı	riving low carbon,	resource	Conferen	ce on
					ficient and clean		Resource	Efficient and
				in	dustrialization in d	leveloping	Cleaner I	Production
				ar	nd transition econo	mies"	(RECP –	2011), UN –
							Gigiri, N	airobi, Kenya,
								tober 2011
		5.	A.Kochov		Management of tec			al Network
					ow Carbon techniq		Conferen	
				ag	gro food sector in V	WBC"		Efficient and
								Production
							(Swiss, L	· ·
	~						October 2	2013)
11.			mentorship) of undergrad	duate, i		ıl studies stu	idents	
	11.1.		graduate		Over 20			
	11.2.	Master			Over 10			
	11.3.	Doctor			Over 5			
12.			f doctoral thesis, selected					
	12.1.		of printed scientific pape				or interna	tional
			ations in the related field			years	D 111 1	,
		No.	Author		<u> Fitle</u>		Publisher	:/year
	10.0	1.	C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				· c: ·	1 .1 . 1
	12.2.		of at least two printed sc			ional scient	ific journa	Is that have
		_	t factor in the related fiel				D 11' 1	/
		No.	Author	J	<u> Fitle</u>		Publisher	year
	10.2	1.	- C - 4 1 4 41 : - 4 4 :	1	4:	: :	-4 C	
	12.3.		of at least three internation		ieetings participati			
		No.	Author	Title		Internation		year
		1				meeting/co	merence	
		1.						

Add	l. 4				re at the first, second and third study on the doctoral thesis
1.	Name (F	irst, Last)	Done Tashev	ski	
2.	Date of b	oirth	04.08.1962		
3.	Scientific	c degree / Title	Ph.D.		
4.	Title of t	he scientific degree	Ph.D. in Tech	nnical Scier	nces
5.	Year and	l institution of the	Education	Year	Institution
	scientific	degree	PhD in	2004	UKIM Skopje Macedonia
			Technical		Faculty of Mechanical Engineering
			Sciences		
			MSc	1994	UKIM Skopje Macedonia
			Technical		Faculty of Mechanical Engineering
			Sciences		

				BSc	1985	UKIM S	kopje Macedonia	
				Technical	1705		of Mechanical Engineering	
				Sciences –			21 1120 011001110011 =11.81110 01111.8	
				Mechanical				
				eng.				
6.			nd particular	Area	Field	Specialty	1	
			master of science	Mechanical	Energetic	Energy a	nd ecology	
	degree			engineering				
7.			and area of	Area	Field	Specialty		
	doctor	ral deg	ree	Mechanical	Energetic	Fuel cell	S	
	TC			engineering			L TOTAL OF	
8.			, state the here he/she	Institution			Title and area	
			ne title and area in	•	Iechanical Eng		Professor / mechanical	
		is nar			versity Ss. Cy	ril and	engineering- thermal	
				Methodius ii	10		engineering	
9.			ses that the teacher				and third cycle	
	9.1.			eacher is lectu	r is lecturing in the first cycle			
		No.	Course	1.	Study program/institution			
		1.	Steam and gas tu	rbines	TI/MFS			
		2.	Exploitation and		TI/MFS			
			maintenance of p and systems	ower plants				
		3.	Energy efficiency	.,	EE/MFS			
		4.	Energy and ecolo		EE/MFS			
	9.2.		of courses that the t			cond cycle	•	
	, . <u>_</u> .	No.	Course		Study progra			
		1.	General ecology		EE/MFS			
		2.	Modeling of proc	cesses of	TI/MFS			
			energy conversio					
	9.3.	List	of courses that the t	eacher is lectu	ring in the thi	ird cycle		
		No.	Course		Study progra	m/instituti	on	
		1.	Energy efficiency	·	TI/MFS			
		2.	Modern power pl		TI/MFS			
10.			k in the past five y					
	10.1.		vant scientific print		o 5)	T =		
		No.	Author	Title		Publishe		
		1.	D. Tashevski,	Analysis of l			onal Journal of Mechanical	
			R. Filkoski,	Affecting the	•	_	ring and Technology	
			D. Dimitrovski, I. Shesho	Optimization SOFC Co-ge		, ,	, (ISSN 0976–6359 Online),	
			1. SHESHO	Power Plants		India, 20	5, Issue 10, pp. 180-190,	
				1 Owel 1 falls		(JIF 7,53		
		2.	D. Tashevski, R.	Optimization	of Rinary	,	onal Journal of Mechanical	
		۷.	D. Tashevski, IX.	Opumizanoi	i oi Dinai y	momati	onar Journal of Micchanical	

		Filkoski, I. Shesho	Cogenerative Thermal Power Plants with Solid Oxide Fuel Cells on Natural Gas.	Engineering and Technology (IJMET), (ISSN 0976–6359 Online), Volume 5, Issue 1, pp. 122-131, India, 2014 (JIF 5,77)
	3.	I. Shesho, D. Tashevski:	Simulation Application for Optimization of Solar Collector Array.	International Journal of Engineering Research and Applications (IJERA), Volume 4, Issue 1, pp. 10-19, (ISSN: 2248-9622), India, 2014 (JIF 1,69)
	4.	D. Tashevski, D. Dimitrovski	Optimization of Binary Co-generative Thermal Power Plants with SOFC on Solid Fuel.	Chemical engineering transaction, vol. 34, pp. 31-36, (DOI: 10.3303/ CET1334006), Italy, 2013 (SJR Thomson Reuters 0,26)
	5.	D. Tashevski, I. Shesho	Three-generation Power Plant with High- temperature Fuel Cells for Complex Building.	International Journal of Engineering Research and Development, (e- ISSN: 2278-067X, p-ISSN: 2278- 800X), Volume 6, Issue 5, pp. 46-52, India, 2013 (JIF 1,131)
10.2.	Parti		ic national and international	
	No.	Author	Title	Publisher/year
	1.	S. Armenski D. Tashevski L. Karakasheva	Production of briquettes and pellets from agricultural waste – Agro Energy	CeProSARD Skopje, Macedonia /2011-2012
10.3.	Print	ed books in the last	five years (up to 5)	
	No.	Author	Title	Publisher/year
	1.	S. Armenski, D. Tashevski	Thermal power plants – exercise, 300 p.,	Alfa 99 Skopje, ISBN 978-9998-936-36-4, Macedonia, 2010.
	2.	S. Armenski, D. Tashevski, L. Karakasheva	Production of briquets and pellets – handbook. 85 p.	CeProSARD, ISBN 978-608-65330-6-9, Skopje, Macedonia, 2012.
	3.	D. Tashevski:	Maintenance and exploatation of energy power plants and systems (1 <sup>st</sup> publication), 298 p.,	UKIM in Skopje E-publication and digital libraries, Skopje, Macedonia, 2014 (No.03-187/2 from 11.2.2014).
10.4.	Print	ed professional pap	ers in the last 5 years (up to	5)
	No.	Author	Title	Publisher/year
	1.	R. Filkoski D. Tashevski, S. Armenski,	Professional expertise for the inability of hot start, constructive	MFS Skopje / December 2013
		Z. Markov:	problem of gas turbine, and other uncorrected	

		2.	D. Tasheva R. Filkosk D. Dimitro I. Shesho:	i,	defects in installation and commissioning of TE-TO AD, No. 07-3270/5.  Technical report of explosion od hot water boiler on LPG located in "Cevahir residence and mall project" – Skopje for Cevahir Gurup Istanbul, Turkie, subsidiary in R.  Macedonia, No. 07-1983/4,	MFS Skopje / December 2013
		3. D. Tashevski		ski	Energy audit report of JOUDG "Angel Shajce" object "Buba Mara", No. 07-235/5,	MFS Skopje / January 2013
		4.	D. Tashevs I. Shesho:	ski,	Head project – mechanical installation, termotechnical installation an facilities for resindetial-bussines object st. M. Apsotolski, tech. No 226/2012,	Bauer Skopje, / May 2012
		5.	D. Tashev	ski	Energy audit of elementary school and kinder gardens under the authority of the local government, municipality G. Petrov and M.A. Chento (5 kinder gardens and 1 elementary school),	MACEF Skopje / January 2001
11.	Super	vision	(mentorshi)	o) of un	dergraduate, master and doc	ctoral studies students
	11.1.		rgraduate		torship of undergraduate st	
	11.2.	Maste	er	- 2 me 1. Sash Maced 2. Arbo renewa - Sever	ntorship of master students ne Panevski - Use of energy onia en Veliu – The potential for able energy sources in urbar n students in progress	management systems in Republic of energy saving in buildings and use of
	11.3.	Docto			udent in progress	
12.	For me	entors	of doctoral	thesis, s	selected work for the last for	ur / five years

12.1.	Proof of printed scientific papers in international scientific journals or international publications in the related field (up to 6) in the past five years						
	No.	Author	Title	Publisher/year			
	1.	D. Tashevski,	Analysis of Parameters	International Journal of Mechanical			
	1.	R. Filkoski,	Affecting the Efficiency	Engineering and Technology			
		D. Dimitrovski,	Optimization of Binary	(IJMET), (ISSN 0976–6359 Online),			
		I. Shesho	SOFC Co-generation	Volume 5, Issue 10, pp. 180-190,			
		1. Sheshe	Power Plants.	India, 2014 (JIF 7,5377)			
	2.	D. Tashevski,	Optimization of Binary	International Journal of Mechanical			
		R. Filkoski,	Cogenerative Thermal	Engineering and Technology			
		I. Shesho	Power Plants with Solid	(IJMET), (ISSN 0976–6359 Online),			
		ii Siiesiio	Oxide Fuel Cells on	Volume 5, Issue 1, pp. 122-131,			
			Natural Gas.	India, 2014 (JIF 5,77)			
	3.	I. Shesho,	Simulation Application	International Journal of Engineering			
		D. Tashevski:	for Optimization of Solar	Research and Applications (IJERA),			
			Collector Array.	Volume 4, Issue 1, pp. 10-19, (ISSN:			
			,	2248-9622), India, 2014 (JIF 1,69)			
	4.	D. Tashevski,	Optimization of Binary	Chemical engineering transaction,			
		D. Dimitrovski	Co-generative Thermal	vol. 34, pp. 31-36, (DOI: 10.3303/			
			Power Plants with SOFC	CET1334006), Italy, 2013 (SJR			
			on Solid Fuel.	Thomson Reuters 0,26)			
	5.	D. Tashevski,	Three-generation Power	International Journal of Engineering			
		I. Shesho	Plant with High-	Research and Development, (e-			
			temperature Fuel Cells	ISSN: 2278-067X, p-ISSN: 2278-			
			for Complex Building.	800X), Volume 6, Issue 5, pp. 46-52,			
				India, 2013 (JIF 1,131)			
	6.	D. Tashevski,	Energy and Ecology	1 <sup>st</sup> Internatinal U.O.C. – B.E.N.A. –			
		D. Dimitrovski,	Benefits of Independent	Conference "The Sustainability of			
		Z. Markov,	SOFC/Gas Turbine Co-	Pharmaceutical, Medical and			
		I. Shesho:	generation Power Plant	Ecological Education and Research –			
			on Natural Gas.	SPHAMEER – 2013", proceedings			
				book p. 6, Constanca, Romania,			
12.2.	Proof	of at least two prin	nted scientific papers in inte	ernational scientific journals that have			
	impac		ted field in the past five yea				
	No.	Author	Title	Publisher/year			
	1.	D. Tashevski,	Analysis of Parameters	International Journal of Mechanical			
		R. Filkoski,	Affecting the Efficiency	Engineering and Technology			
		D. Dimitrovski,	Optimization of Binary	(IJMET), (ISSN 0976–6359 Online),			
		I. Shesho	SOFC Co-generation	Volume 5, Issue 10, pp. 180-190,			
			Power Plants.	India, 2014			
				(JIF 7,5377)			
	2.	D. Tashevski,	Optimization of Binary	International Journal of Mechanical			
		R. Filkoski,	Cogenerative Thermal	Engineering and Technology			

		I. Shesho	Power Plants with Solid Oxide Fuel Cells on Natural Gas.	(IJMET), (ISSN 0976–63. Volume 5, Issue 1, pp. 12 India, 2014 (JIF 5,77)	
	3.	I. Shesho, D. Tashevski:	Simulation Application for Optimization of Solar Collector Array.	International Journal of Ex Research and Application Volume 4, Issue 1, pp. 10 2248-9622), India, 2014 (JIF 1,69)	s (IJERA),
	4.	D. Tashevski, D. Dimitrovski	Optimization of Binary Co-generative Thermal Power Plants with SOFC on Solid Fuel.	Chemical engineering tranvol. 34, pp. 31-36, (DOI: CET1334006), Italy, 2013 (SJR Thomson Reuters 0,	10.3303/ 3 26)
12.3.	5. D. Tashevski, I. Shesho Three-generation Power Plant with Hightemperature Fuel Cells for Complex Building.			International Journal of Endescent and Development ISSN: 2278-067X, p-ISSN 800X), Volume 6, Issue 5 India, 2013 (JIF 1,131) ipation in the past four year	nt, ( e- N: 2278- , pp. 46-52,
12.3.	No.	Author	Title	International	year
	110.	Author	Titic	meeting/conference	year
	1.	D. Dimitrovski, M. Dimitrovski, E. Kitanovska, D. Tashevski:	Pollution from Diesel Engines do to Increase of Imported Vehicles in FYR-Macedonia. (IOC - 2 <sup>nd</sup> Award)	1 <sup>st</sup> International Medical Conference "Environment and Public Health" MED ENV 2014, Mamaia, Romania,	12-14 September 2014.
	2.	D. Dimitrovski, M. Dimitrovski, G. Popsimonova, D. Tashevski	Biogas – Overview of the Possibilities for Implementation in the Macedonian Agricultural Sector. (IOC)	16 <sup>th</sup> Symposium on Thermal Science and Engineering of Serbia – SIMTERM 2013, p. 11, Sokobanja, Serbia,	22-25 October, 2013.
	3.	D. Dimitrovski, K. Belcheska, D. Tashevski, M. Kocubovsk	Possible Scenarios for Achiving the Goal 20/20/20 in FYR- Macedonia.	1 <sup>st</sup> Internatinal U.O.C. – B.E.N.A. – Conference "The Sustainability of Pharmaceutical, Medical and Ecological Education and Research – SPHAMEER – 2013", p. 6, Constanca, Romania. (IOC)	20-23 June, 2013.
	4.	D. Tashevski,	Energy and Ecology	1 <sup>st</sup> Internatinal U.O.C. –	20-23

		D. Dimitrovski,	Benefits of Independent	B.E.N.A. – Conference	June,
		Z. Markov,	SOFC/Gas Turbine Co-	"The Sustainability of	2013.
		I. Shesho:	generation Power Plant	Pharmaceutical, Medical	(IOC)
			on Natural Gas.	and Ecological	
				Education and Research	
				- SPHAMEER - 2013",	
				p. 6, Constanca,	
				Romania,	
	5	D. Dimitrovski,	Strategic connection of	International gas	2012
		M. Dimevska,	Republic of Macedonia	conference of South	
		D. Tashevski:	to the European natural	Eastern Europe,	
			gas streams. (IOC)	Sarajevo, Bosnia and	
				Herzegovina,	

Add	l. 4	Information about the te	achers that lecture a	t the first	second	l and third study	
		program and are mentor	s on the doctoral the	esis			
1.	Name (Fi	rst, Last)	Risto Filkoski				
2.	Date of b	irth	29.04.2964				
3.		degree / Title	Ph.D.				
4.		ne scientific degree	Ph.D. in Technical S	Sciences			
5.	Year and institution of the scientific		Education	Year		Institution	
	degree		BSc (Dipl. Eng.)	1989		UKIM, Faculty of	
						Mech. Eng., Skopje	
			MSc	1997		UKIM, Faculty of	
						Mech. Eng., Skopje	
			PhD	2004		UKIM, Faculty of	
						Mech. Eng., Skopje	
6.		d and particular specialty	Area	Field		Specialty	
	of master	of science degree	Technical sciences	Power		Power and process	
				engineering		engineering	
7.		d and area of doctoral	Area	Field		Specialty	
	degree		Technical sciences	Power		Mathematical	
				engineer	ing	modelling and	
						simulation of energy	
						processes	
8.		ed, state the institution	Institution		Title a	nd area	
		she works and the title	University "Sts Cyri	il and	Assoc.	professor	
	and area i	n which is named		Methodius", Faculty of			
			Mechanical Enginee	ering			
9.		urses that the teacher is lect			d and thi	ird cycle	
	9.1. Li	st of courses that the teacher	r is lecturing in the fir	rst cycle			
	No	o. Course		Study pro	gram/ir	nstitution	
	1.	Boiler plants		Thermal	enginee	ring	

		2.	Process technique		Thermal engineer	ring	
		3.	Thermodynamics		Power engineering and envitonment		
		4.	Energy management and resources			ng and envitonment	
	9.2.		of courses that the teacher is lecturing in the	ne se			
	<i>&gt;</i> .2.	No.	Course	10 50	Study program/ir	nstitution	
		1.	Modelling of energy conversion process	es	Thermal engineering		
		2.	Steam generators - selected chapters		Thermal engineer		
		3.	Fuels use and environment			ng and envitonment	
	9.3.		of courses that the teacher is lecturing in the	ne th		6	
		No.	Course		Study program/ir	stitution	
		1.	Selected chapters from modelling of		Thermal engineer		
			energy conversion processes			_	
		2.	Modelling of energy conversion process	ses	Power engineering	ng and envitonment	
			and environmental impact				
10.			rk in the past five years				
	10.1.		vant scientific printed paper (up to 5)			<del>,</del>	
		No.	Author	Tit		Publisher/year	
		1.	R. V.Filkoski, L. Joleska Bureska, I. J.		sessment of the	Chemical Eng.	
			Petrovski		pact of Under-	Transactions, AIDIC	
					e Air	Publ., 2013, 34, 25-	
					roduction on the	30, DOI:	
					lverised Coal	10.3303/CET1334005	
					mbustion		
					ficiency		
		2.	Mikulcic H., Vujanovic M., Markovska		O <sub>2</sub> Emission	Chem. Eng. Trans.,	
			N., Filkoski R. V., Ban M., Duic N.		duction in the	AIDIC Publ., 2013,	
				Ce	ment Industry	Vol. 35, p.703-708,	
						ISBN 978-88-95608-	
						26-6; ISSN 1974-	
						9791	
		3.	V. Strezov, E. Popovic, R. V. Filkoski,	As	sessment of the	Energy and Fuels,	
			P. Shah, T. Evans	Th	ermal Processing	ACS Publications,	
				Be	haviour of	2012, 26, p.5930-	
				То	bacco Waste	5935	
		4.	R. V. Filkoski	Pu	lverised-Coal	The Open	
					mbustion with	Thermodynamics	
					iged Air	Journal, Vol. 4(2010),	
					roduction: CFD	Bentham Science	
					alysis with	Publ., 2010, p. 2-12.	
					fferent Radiation	, , , 1	
				Me	ethods		
		5.	R. V. Filkoski	Ra	diation Heat	Archives of	

			Transfer Modelling and CFD Analysis of Pulverised-Coal Combustion with Staged Air Introduction	Thermodynamics, Vol. 30(2009), No. 4, IFFM Publishers, 2009, p. 97-118.
	6.	R. V. Filkoski, S. V. Belošević, I. J. Petrovski, S. N. Oka, M. A. Sijerčić	CFD Technique as a Tool for Description of the Phenomena Occuring in Pulverised Coal Boilers	Proc. ImechE Part A: Journal of Power and Energy, Vol. 221 (3), 2007, p. 399-409.
	7.	R. V. Filkoski, I. J. Petrovski, P. Karaś	Optimisation of Pulverised Coal Combustion by Means of CFD/CTA Modelling	(An International Journal of) Thermal Science, Vol. 10 (3), 2006, p. 161-179.
10.2.	Parti	cipation in scientific national and internat	ional projects (up to 5)	)
	No.	Author	Title	Publisher/year
	1.			
10.3.		ed books in the last five years (up to 5)		
	No.	Author	Title	Publisher/year
	1.	R. V. Filkoski	Modelling of energy conversion processes	Tempus CARDS JEP- 19017 "Numerical Simulation Program in Mechanical Eng.", Faculty of Mech. Eng., Skopje, 2009.
	2.	R. V. Filkoski, I. J. Petrovski	Air Pollution Control, Textbook	DEREC Tempus JEP CD_JEP-19840-2004 "Development of Environmental and Resources Engineering Curriculum, Florence- Skopje, 2008.
	3.	M. Azievska (coord.), R. V. Filkoski et al.	Second National Communication on Climate Change	MESP, MASA, Skopje, 2008, ISBN 978-9989-110-68-9
				), 0 )) 0) 110 00 )
10.4.	Print	ed professional papers in the last 5 years (		710 7707 110 00 7

		1.	Filkoski R. V.	Experiences on the feasibility of the utilisation of vineyard and vineculture residues for energy purposes	Symp. Biomass solutions for LCP and traffic in Adria region - R&D and application, Adria Section of Int. Combustion Institute, Sarajevo, 2014
			Filkoski R., Tashevski D., Armenski S., Markov Z.	Expert report on the impossibility of hot start, technical problem on gas turbine, latent and other defects during installation and start-up of power plant TE-TO AD Skopje	Faculty of Mech. Engineering, Skopje, Dec. 2013 - Jan. 2014
		3.	I. J. Petrovski, R. V. Filkoski	Energy efficiency improvement and waste heat utilisation in bitumen processing	Technology development project co-fin. by the Ministry of Education and Science of RM, Skopje, 2011
		4.	R.V. Filkoski, I.J. Petrovski, M. Ginovska, H. Borchsenius	A Case Study of Energy Recovery in Ferro-Alloys Industry	II Reg. Conference IEEP '10, Zlatibor, Serbia, 2010.
		5.	R. V. Filkoski, I. J. Petrovski, I. Janev	A Case Study of Energy Management Improvement in Concrete Products Industry	II Conference "Sustainable Development and Climate Changes SUSTAINNIS 2010", Nis, Serbia, 2010.
11.	Super	vision	(mentorship) of undergraduate, master and	· ·	
	11.1.		rgraduate	50	
	11.2.	Maste		7	
10	11.3.	Docto		3	
12.			of doctoral thesis, selected work for the la		international
	12.1.		of printed scientific papers in internation cations in the related field (up to 6) in the	•	mernational
		No.	Author	Title	Publisher/year
		1.	R. V.Filkoski, L. Joleska Bureska, I. J.	Assessment of the	Chemical Eng.
1			Petrovski	Impact of Under-	Transactions, AIDIC

			Fire Air Introduction on the Pulverised Coal Combustion Efficiency	Publ., 2013, 34, 25-30, DOI: 10.3303/CET1334005
	2.	Mikulcic H., Vujanovic M., Markovska N., Filkoski R. V., Ban M., Duic N.	CO <sub>2</sub> Emission Reduction in the Cement Industry	Chem. Eng. Trans., AIDIC Publ., 2013, Vol. 35, p.703-708, ISBN 978-88-95608- 26-6; ISSN 1974- 9791
	3.	V. Strezov, E. Popovic, R. V. Filkoski, P. Shah, T. Evans	Assessment of the Thermal Processing Behaviour of Tobacco Waste	Energy and Fuels, ACS Publications, 2012, 26, p.5930- 5935
	4.	R. V. Filkoski	Pulverised-Coal Combustion with Staged Air Introduc-tion: CFD Analysis with Different Radiation Methods	The Open Thermodynamics Journal, Vol. 4(2010), Bentham Science Publ., 2010, p. 2-12.
	5.	R. V. Filkoski	Radiation Heat Transfer Modelling and CFD Analysis of Pulverised-Coal Com-bustion with Staged Air Introduction	Archives of Thermodynamics, Vol. 30(2009), No. 4, IFFM Publishers, 2009, p. 97-118.
	6.	R. V. Filkoski, S. V. Belošević, I. J. Petrovski, S. N. Oka, M. A. Sijerčić	CFD Technique as a Tool for Description of the Phenomena Occuring in Pulverised Coal Boilers	Proc. ImechE Part A: Journal of Power and Energy, Vol. 221 (3), 2007, p. 399-409.
12.2.		of at least two printed scientific papers in ite factor in the related field in the past five	nternational scientifi	c journals that have
	No.	Author	Title	Publisher/year
	1.	V. Strezov, E. Popovic, R. V. Filkoski, P. Shah, T. Evans	Assessment of the Thermal	Energy and Fuels, ACS Publications,

		http://pubs.acs.org/toc/enfuem/26/ 9#RenewableEnergy	<u>/</u>	Processir Behaviou Tobacco	ır of	2012, 26, j 5935	p.5930-
	2.	R.V. Filkoski, L. Joleska Bureska Petrovski http://www.aidic.it/cet/13/34/005.			ent of the f Under- tion on erised nbustion	Chemical ring Trans AIDIC Pu 34, p.25-3	actions, bl., 2013,
	3.	R. V. Filkoski http://www.benthamscience.com/ open/totherj/openaccess2.htm		Pulverise Combust Staged A Introduc- CFD Ana with Diff Radiation Methods	ion with ir tion: alysis erent	Bentham S	namics ol. 4(2010),
	4.	R. V. Filkoski, S. V. Belošević, I. Petrovski, S. N. Oka, M. A. Sijerč http://pia.sagepub.com/content/22	eić	CFD Tec as a Tool Descripti Phenome Occuring Pulve-ris Boilers	for on of the ena	J. of Powe	ol. 221 <b>(3)</b> ,
	5.	R. V. Filkoski, I. J. Petrovski, P. F. http://thermalscience.vinca.rs/200		Optimisa Pulverise Combust Means of CFD/CT: Modellin	ed Coal ion by f A	(An Intern Journal of Science, V Belgrade, 161-179.	) Thermal ol. 10 ( <b>3</b> ),
12.3.	Proof	f of at least three international meeti	ngs' par			four years	
	No.	Author	Title	•	Internation		year
	1.	R. V. Filkoski, M. Chekerovska		merical of a flat- olar or	Proceedin SEEP 20	_	Dubai, 23- 25 November, 2014
	2.	R. V. Filkoski, I. J. Petrovski	-	ch on the	Proceedin SEEP 20		Dubai, 23- 25 November,

			agriculture biomass residues for energy purposes		2014
Š	3.	Filkoski R. V.	Experiences on the feasibility of the utilisation of vineyard and vine-culture residues for energy purposes	Symp. Biomass solutions for LCP and traffic in Adria region - R&D and application, Adria Section of Int. Combustion Institute	Sarajevo, 2014
2	4.	Filkoski R. V.	The smart energy concept: the demand side potential,	Workshop "Smart Grids and Power Highways for the Enlarged Europe: Assessing the Challenges", European Commission, JRC, Inst. for Energy and Transport, Petten	Antalya, 18-20 Sept., 2013
:	5.	Filkoski R.V., Stojkovski F., Stojkovski V.	A CFD study of a solar chimney power plant operation	6 <sup>th</sup> Int. Conf. on Sustainable Energy and Environmental Protection SEEP 2013	Maribor, 20-23 August 2013
	6.	Filkoski R.V., Petrovski I.J., Stanojevska B.	Some observations on the possibility of using wine twigs for energy needs	6 <sup>th</sup> Int. Conf. on Sustainable Energy and Environmental Protection SEEP 2013	Maribor, 20-23 August 2013
	7. 8.	Filkoski R.V., Bureska L.J., Petrovski I.J.  Filkoski R. V., Bureska L.J.,	Improvement of combustion efficiency of pulverised coal with under-fire air introduction	7 <sup>th</sup> Int. Conf. on Sustainable Development of Energy, Water and Environment Systems SDEWES 2012 5 <sup>th</sup> Int. Mechanical	Ohrid, 2012

		Petrovski I. J.	research,	Eng. Forum IMEF	2012
			educational and	2012	
			design tool in		
			energy and		
			environmental		
			engineering		
	9.	Filkoski R. V.	Past and	ACH Combustion	Zagreb,
			present	Meeting, 2012	2012
			research	_	
			activities on		
			combustion at		
			the Faculty of		
			Mechani-cal		
			Engineering in		
			Skopje		
	10.	Filkoski R.V., Popovic E.,	Experimental	7 <sup>th</sup> International	Kyiv,
		Strezov V.	study of	Conference on	Ukraine,
			product	Biomass for	2011
			composition	Energy	
			during slow		
			pyrolysis		
			processing of		
			tobacco		
			residues		

Add	l. 4	Information	n about the teache	rs that lecture at the	first, second and third study
		program ar	nd are mentors on	the doctoral thesis	
1.	1. Name (First, Last)		Zoran Markov		
2.	2. Date of birth		23.06.1975		
3.	3. Scientific degree /		Ph.D.		
	Title				
4.	Title of tl	he scientific	Ph.D. in Technica	l Sciences	
	degree				
5.	Year and	institution	Education	Year	Institution
	of the sci	entific	Ph.D in	2007	Faculty of Mechanical
	degree		Mechanical		engineering - Skopje
			Engineering		
			M. Sc. in	2001	Faculty of Mechanical
			Mechanical		engineering - Skopje
			Engineering		
			B. Sc. in	1998	Faculty of Mechanical
			Mechanical		engineering - Skopje
			Engineering		

6.	Area,	field a	nd	Area		Field		Specialty
	partici	ular sp	ecialty	Technical	<u>l</u> -	Mechanica		Fluid mechanic and fluid
			science	technolog	gical			flow systems
	degree	e		sciences				
7.	Area,	field a	nd area	Area		Field		Specialty
	of doc	ctoral d	legree	Technical	[-	Mechanical		Hydro energy
				technolog	gical			
				sciences				
8.	If emp			Institution	n		Title and are	ea
		the institution where		Universit	v of Ss (	Cyril and	Associate pr	ofessor, Fluid flow and
			s and the	Methodiu	•	•	hydraulic ma	
		nd area		Mechanic		•		
		is nan						
9.								nd and third cycle
	9.1. List of courses			that the tea				
		No.	Course			• • •	m/institution	
		1.	Fluid m			EE, TI, TML	<u>, MV/ FME</u>	
		2.	-	ic turbines	and	AFI / FME		
			pumps					
	0.2	3.		ower plant		EE / FME lecturing in the second cycle		
	9.2.			that the tea				le
		No.	Course	C . 1 .			m/institution	
		1.		of turbine a	and	AFI / FME		
		2	CFD sin		£	AEL / EME		
		2.		l chapters of echanics	)1	AFI / FME		
		3.		vater treatm	nent	EE / FME		
	9.3.						ne third cycle	
	7.5.	No.	Course	that the tee			m/institution	
		1.		rmation of		Mechanics /		
		1.		ole energy i		Tyreenames /	I IVIL	
				ic machines				
		2.		nergy and		Mechanics /	FME	
			environi	••				
10.	Selecte	ed wor		ast five yea	rs			
	10.1.			tific printed		(up to 5)		
		No.	Author		Title	· •		Publisher/year
		1.	Markov Z	Z.,	Produc	tion and Utili	zing of	Journal of Environmental
			Dimitrov			and Other M		Protection and Ecology,
			Jovanosk	ti I.,	Increas	ing Energy E	fficiency in	p.1014-1022, Vol. 14, no.3
			Nenchev	A.	the Mu	nicipal Waste	ewater	(2013)
					Treatm	ent Plant		
		2.	Iliev V.,	Popovski	-	parison of nu		Techniques, technologies,
			P., Marko	ov Z.	predicti	tion and experimental edu		education and management

			dynamic behavior at transient regimes of hydropower plant	journal, Vol. 9, no.1 (2014)
	3.	Markov Z., Popovski P., Talevski G., Ristova E.	Manufacturing of a Centrifugal Pump Using Integrated Computer Aided Approach	International Virtual Journal Machines, Technologies, Materials, pp. 22-24, Issue 1, Year VII, 2013
	4.	Reskovski F., Markov Z., Lipej A., Sirok B.	Numerical Prediction Of Karman Vortex Street Phenomenon In NACA 4421 Aerofoil Wake	Mechanical Engineering - Scientific Journal, Faculty of Mechanical Engineering- Skopje, Vol. 30, no. 1-2, pp. 29-37, 2012
	5.	Iliev V., Popovski P., Markov Z.	Transient Phenomena Analysis in Hydroelectric Power Plants at Off-design Operating Conditions	International Journal of Engineering Research and Applications, Vol. 2, Issue 6, pp. 1480-1488, 2012
10.2.	Parti	cipation in scientific	national and international projects	(up to 5)
	No.	Author	Title	Publisher/year
	1.	Noshpal A., Stojkovski V., Markov Z.	Application of CAD and CAX technologies in electrical technique processes in energy and ecology	Ministry of education and science of Republic Macedonia 2006-2009
	2.	Popovski P., Markov Z., Popovski B.	Capacity Building of the Secondary Education Teachers in the Field of Environmental and Social Impact of Renewable Energy	UNESCO project, 2012
	3.	Tuneski A., Markov Z.	Monitoring and Improving the Rivers in the Vardar/ Axios Watershed (MIRVAX)	NATO PfP project, 2006- 2008
	4.	Tuneski A., Markov Z.	Development of Environmental and Resources Engineering Curriculum (DEREC)	EU TEMPUS project, 2005-2008
	5.	Tuneski A., Markov Z	Development of Environmental and Resources Engineering Learning (DEREL)	EU TEMPUS project, 2010-2014
10.3.	Print	ed books in the last f		
	No.	Author	Title	Publisher/year
10.4.	1. Print	ed professional pape	rs in the last 5 years (up to 5)	
-	No.	Author	Title	Publisher/year
	1.	Markov Z., Dimitrovski D., Aleksic V.	Development of gas distribution network for the city of	5 <sup>th</sup> International gas conference of Southeast
		Aleksic V.	Kumanovo – challenges and solutions	Europe, Sarajevo, Bosnia- Herzegovina, 2012

		2.	Popovski P., Markov Z.		Development of	f basic criteria of feed-in tariffs	Proceedings of the Conference on sus	e 5 <sup>th</sup>
			Warkov Z.		in r. Macedonia		development of ea	nergy,
							water and environ	
							systems, Dubrovn	
		3.	Jovanoski I.,	-	Monitoring and	analysis of the	Croatia, 2009, pp. 3 <sup>rd</sup> international C	407 Onference
		<i>J</i> .	Popovski P.			manovo WWTP	challenges in the	
			Markov Z.,		and proposed m		sector in the EU a	
			Tuneski A.,		_	fficiency of the	process, Ministry	
			Nencev A.		aeration system		environment and	. •
		4.	Toyon oalri T		Ovality of the a	w.aacc.caw.aac	planning, Skopje, International BEN	
		4.	Jovanoski I., Markov Z.,		Quality of the e sludge from mu		Conference, SPH	
			Dimitrovski D.,		wastewater trea		Constanta, Roman	
			Kochubovski M			use and disposal	,	,
					in R. Macedoni			
11.				ınder		er and doctoral stud	dies students	
	11.1. 11.2.	Maste	rgraduate		23			
	11.2.	Docto			1			
12.				. sele	ected work for t	he last four / five y	vears	
	12.1.						ournals or internation	onal
		publi	cations in the rela	ated 1	field (up to 6) ii	n the past five year	s	
		No.	Author		Title		Publisher/year	
	10.0	1.	. 6 . 1	• ,	1	• • • • • •		.1 . 1
	12.2.		of at least two pet factor in the re				scientific journals	that have
		No.	Author	lated	Title	t five years	Publisher/year	
		1.	1100101		1100		1 delision year	
	12.3.	Proof	of at least three	inter	national meetin	gs' participation in	the past four years	S
					e	International mee		Year
		1.	Markov Z.,		ethodology	South East Europ		2014
			Jovanoski I.,		Selection Of Most	on Sustainable D Energy, Water ar	-	
			Shishovska		propriate	Systems - SEE S		
			M.,		chnology For	http://www.ohrid	2014.sdewes.org/	
					nicipal stewater			
					atment Using			
					lti-Criteria			
				Ana	alysis''			

App	<b>5.</b> 4	In	formation about the teac program a	chers that lecture nd are mentors o	,	•			
1.	Name (Last)	First,	Ana Lazarevska						
2.	Date of	birth	11.12.1969						
3.	Scientif	ic	Ph.D.	Ph.D.					
	degree /								
4.	Title of scientifications		Ph.D. in Technical Sc.	ience					
5.	degree Year an	ıd	Education	Year		Institution			
<i>J</i> .	instituti		Ph.d In Engineering	2008		Faculty of Mechanical			
	the scie		This in Engineering	2000		engineering - Skopje			
	degree		M. Sc. In Engineering	2001		Faculty of Mechanical			
				,		engineering - Skopje			
			B. Sc. In Engineering	1994		Faculty of Mechanical			
						engineering - Skopje			
6.	Area, fi	eld and	Area	Field		Specialty			
	particul	ar	Technical-sciences	Mechanical		Fluid mechanics			
	specialt	•				Environmental			
	master					protection			
	science								
7.	Area, fi			Field		Specialty			
	area of	doctora	d Technical-sciences	Mechanical		Environmental			
	degree		<b>T</b>		Territor 1	protection			
8.	If emplo	•	Institution		Title and area	a			
	state the		University of Ss Cyril	and Methodius,	Assistant pro	fessor, Environmental			
	instituti where h		faculty of Mechanical	engineering	protection				
	works a								
	title and		1						
	which is								
9.			that the teacher is lecturing	ng separately for fi	rst, second and	d third cycle			
•			courses that the teacher is						
			Course	Study program/i					
	l —		Hydraulics and hydraulic	IND, PInf / FME					
			nachines	,					
		2. \$	Systems for hydraulic	EE/FME					
			and pneumatic transport						
		3. I	Hydraulic and pneumatic	AFI/FME					
			ransport						
	[ ·		Designing systems for	AFI/ FME					
			nydraulic and pneumatic						
		t	ransport						

	ı	_	T=		T		
		5.	Practice in the in	-	AFI, EE / FME		
			small and mediu	ım			
			enterprises				
	9.2.	List	of courses that the	teacher is	lecturing in the second cycle		
		Nr.	Course		Study program/institution		
		1.	Water protection	n and	AFI / FME		
			sustainable deve	lopment			
		2.	Evaluation of	_	IZIS / Ss		
			Environmental I	mpact			
	9.3.	List	of courses that the	teacher is	lecturing in the third cycle		
		Nr.	Course		Study program/institution		
		1.					
		2.					
10.	Selecte	ed wo	rk in the past five	vears			
	10.1.		evant scientific prin		(up to 5)		
		Nr.	Author	Title		Publisher/year	
		1.	Lazarevska, A.		Emission Reduction Potential	Proc. "Energetics	
		1.	M,		s-Fired Combined Cycle Heat	2010" International	
			Mladenovska,		er Plant "Energetika""	Symposium, Ohrid, 07-	
			D., Sørensen,			09 October, 2010.	
			Å. L., Glimsdal,				
			A. I.,				
		2.	Lazarevska, A.	"Is Mode	rnization of Bitola Thermal	Proc. "Energetics	
			M,		ant feasible as a Clean	2010" International	
			Mladenovska,		ment Mechanism Project"	Symposium, Ohrid, 07-	
			D., Sørensen,	1	J	09 October, 2010.	
			Å. L., Glimsdal,			,	
			A. I.,				
		3.	Lazarevska, A.	"A Multi-	-Criteria Decision Making	Published in NATO	
			M., Fischer, N.,		al Approach to optimal	Science for Peace and	
			Münnich, K.,	_	Monitoring"	Security Series – C:	
			Haarstrick, A		<i>y</i>	Environmental Security	
			,			"GeoSpatial Visual	
						Analytics:	
						Geographical	
						Information Processing	
						and Visual Analytics	
						for Environmental	
						Security", (Eds. De	
						Amicis, R., Stojanovic,	
						R., Conti, G.), Springer	
						Science + Business	
						Media, pp. 97–112,	
						2009	
	l			l			

	4.	Nospal, A., Lazarevska, A. M	"Environmental protection and industry: Parameters necessary for environmentally related decision making"	Published in NATO Science for Peace and Security Series – C: Environmental Security "GeoSpatial Visual Analytics: Geographical Information Processing and Visual Analytics for Environmental Security", (Eds. De Amicis, R., Stojanovic, R., Conti, G.), Springer Science + Business Media, pp. 97–112, 2009,
	5.	Lazarevska, A.M.	"Comparative Analysis of Parameters Obtained while Simulating an Air- Pollution Episode",	Mathematica Balkanica, New Series Vol. 20, 2006, Fasc. 1. pp. 49-62
10.2.			ific national and international projects (up to	
	Nr.	Author	Title	Publisher/year
	1.	Cosmo – Innovative Center	EUREM (European Energy Manager) Plus	Co-funded by the Intelligent Energy Europe Programme of the EU, 2013 – 2015
	2.	Bilic, I Lazarevska, A.	Open Access to the Enterpreneuership Lifelong Learning (LLL) Education for Persons with Disabilities (PwDs) adjusted for Visually Impared Persons (VIPs), http://www.lll4business.org/	Alumni Engagement Innovation Fund (AEIF), US Department of State 2012 – 2014
	3.	Lazarevska, A.	Ensuring Equal Access through Service Learning for Persons with Disabilities, http://www.equalaccess4pwds.org/	AEIF, US Department of State 2011 – 2012. Macedonian-American Alumni Association (MAAA)
	4.	Lazarevska, A.M. Atanasovski, A.	"Regional JFDP Alumni Conference "Enhancing Accessibility of the Higher Education to the Disabled", Nov. 22-24, 2010 in Skopje/Ohrid, Macedonia": (http://www.maaa.com.mk/jfdp- conference-2010)	MAAA. Financed by the Junior Faculty Development Program (JFDP) Alumni Grant (JAG), under the auspices of the Alumni Local Initiative Grants Program, funded by the

	5.	Tuneski A.	Development of Environmental and Resources Engineering Learning (DEREL)	Bureau of Educational and Cultural Affairs of the US Department of State (ECA), administered by the American Councils for International Education: ACTR/ACCELS. (Aug 2010 – Dec 2010) EU TEMPUS проект, 2010 – 2014
(	6.	Kochov, A.	Cleaner Production (CP) Training (CIRKO National Cleaner Production Center – Macedonia	UNIDO Funded, 2010 - 2011
	7.	A. Nospal et al.	Application of CFD and CAX Technologies in Fluid Flow Processes in Energetics and Ecology.	FME,Ss, financed by the Ministry of education and science, 2006–2009
			st five years (up to 5)	
	Nr.	Author	Title	Publisher/year
	1.	Lazarevska, A. M., Bilić, I., Koçi, A. (Eds.),	"Book of Case Studies: Service Learning Success Stories in Macedonia and Croatia"	MAAA, 2012:
2	2.	Lazarevska, A. M., et al.,	"Guidelines for Correct Attitude towards Persons with Disabilities or Limited Abilities in Higher Education" (Eds. Lazarevska, A. M., Trajkovski, V., Petrov, R.), in English (ISBN 978-608-4700-01-2), Macedonian (ISBN 978-608-4700-02-9), Croatian and Albanian	MAAA, 2012:
	3.	Ristovska M. 2012:	"Guidelines for Effective Introduction and Implementation of Service— Learning in Higher Education", (Eds. Lazarevska, A. M., Nikolov, A., Stankovic, M.), in Macedonian (ISBN 978-608-4700-03-6). (Eds. Lazarevska, A. M., Stankosky, M., Koçi, A.), in English (ISBN 978-608-4700-00-5),	MAAA, 2012:
2	4.	Kochi, A., Reka, A., Lazarevska, A. M. (Eds.), 2011	"Model United Nations: A model for extracurricular Activity", pp. 43 (Eng.), (ISBN 978-608-65257-2-9).	MAAA, 2012:

		5.	Vaclav Smil	Ener	gy in Nature and Society	Datapons, 2013
			(translated			
	10.4	ъ.	book)		1 1 . 5	
	10.4.				n the last 5 years (up to 5)	D 11' 1 /
		Nr.	Author	Title		Publisher/year
		1.	Mladenovska,		rmining Relevant Attributes and	BALKANMINE 2013,
			D., Lazarevska,		esponding Indicators in a Decision	Vth JUBILEE
			A. M		ing Concept for Site-Selection of	BALKAN MINING
				Coal	Fired Thermal Power Plants	CONGRESS, 18 ÷ 21th
						September 2013 –
			D I	CI	D 1 ( A ( D (	Ohrid, Macedonia
		2.	Peeva, L.,		ner Production Assessment Report	2010 – 2011 Cleaner
			Jovanovski, D.,	OI M	EGA DOOEL Skopje	Production (CP)
			Lazarevska, A.			Training (CIRKO National Cleaner
			M., Shushlevska,			Production Center –
			M.			Macedonia – UNIDO
			IVI.			Funded), 2011
		3.	Lazarevska, A.,	Draft	t PDD for the CDM Project: "Gas-	for AD ELEM, 2010,
		٥.	M.		Combined Cycle Heat and Power	financed by project
			171.		t "Energetika"	leaded by Norsk
				1 Idil	Lifergetiku	Energi, Norway
		4.	Lazarevska, A.,	Draft	t PDD for the CDM Project:	for AD ELEM, 2010,
		''	M.		abilitation of Bitola Thermal Power	financed by project
			1,1,	Plant		leaded by Norsk
						Energi, Norway
11.	Super	vision	(mentorship) of u	ndergr	raduate, master and doctoral studies s	tudents
	11.1.	Unde	ergraduate		2	
	11.2.	Mast	er		-	
	11.3.	Doct	oral		-	
12.	For me	entors	of doctoral thesis,	select	ed work for the last four / five years	
	12.1.		_		pers in international scientific journal	s or international
		publ	ications in the rela	ted fie	ld (up to 6) in the past five years	
		Nr.	Author		Title	Publisher/year
		1.	Lazarevska, A. l	M.,	"A Multi-Criteria Decision	Published in NATO
			Fischer, N.,		Making Conceptual Approach to	Science for Peace and
			Münnich, K.,		optimal Landfill Monitoring"	Security Series – C:
			Haarstrick, A.			Environmental Security
						"GeoSpatial Visual
						Analytics:
						Geographical
						Information Processing
						and Visual Analytics
						for Environmental

				Security", (Eds. De Amicis, R., Stojanovic, R., Conti, G.), Springer Science + Business Media, 2009
	2.	Nospal, A., Lazarevska, A. M.	"Environmental protection and industry: Parameters necessary for environmentally related decision making"	Published in NATO Science for Peace and Security Series – C: Environmental Security "GeoSpatial Visual Analytics: Geographical Information Processing and Visual Analytics for Environmental Security", (Eds. De Amicis, R., Stojanovic, R., Conti, G.), Springer Science + Business Media, 2009
12.2.			scientific papers in international scien	ntific journals that have
			ield in the past five years	D 11' 1 /
	Nr.	Author	Title	Publisher/year
	1.	Lazarevska, A. M., Fischer, N., Münnich, K., Haarstrick, A.	"A Multi-Criteria Decision Making Conceptual Approach to optimal Landfill Monitoring"	Published in NATO Science for Peace and Security Series – C: Environmental Security "GeoSpatial Visual Analytics: Geographical Information Processing and Visual Analytics for Environmental Security", (Eds. De Amicis, R., Stojanovic, R., Conti, G.), Springer Science +
	2.	Nospal, A.,	"Environmental protection and	Business Media, 2009 Published in NATO

					Geographical Information Pro and Visual Ana for Environment Security", (Eds. Amicis, R., Sto. R., Conti, G.), Springer Scient Business Medical	lytics  tal  De  janovic,
12.3.			ational meetings' participati		•	
	Nr.	Author	Title	Internation meeting/	onal conference	year
	1.	Lazarevska, A. M, Mladenovska, D., Sørensen, Å. L., Glimsdal, A. I.,	"Carbon Emission Reduction Potential of the Gas-Fired Combined Cycle Heat and Power Plant "Energetika""	Internation	um, Ohrid, 07-	2010
	2.	Lazarevska, A. M, Mladenovska, D., Sørensen, Å. L., Glimsdal, A. I.,	"Is Modernization of Bitola Thermal Power Plant feasible as a Clean Development Mechanism Project"	Internation	um, Ohrid, 07-	2010
	3.	Mladenovska, D., Lazarevska, A. M	Determining Relevant Attributes and Corresponding Indicators in a Decision Making Concept for Site-Selection of Coal Fired Thermal Power Plants	Vth JUB BALKA CONGR Septemb	NMINE 2013, ILEE N MINING ESS, 18 ÷ 21th er 2013 – Iacedonia	2013

Add	1. 4	Information about program and are n			, second and third study	
1.	Name (F	irst, Last)	Dame Dimitrovs	кi		
2.	Date of b	oirth	21.11.1979			
3.	Scientific degree / Title		Ph.D.			
4.	Title of the	he scientific degree	Ph.D. in Technic	al Sciences		
5.	Year and	institution of the	Education	Year	Institution	
	scientific	degree	PhD.	2010	UKIM, Faculty of	
					Mechanical	
					engineering	

				Magister	of	2007		UKIM, Faculty of
				technical	sciences			Mechanical
								engineering
				Mechanic	al	2003		UKIM, Faculty of
				engineer				Mechanical
								engineering
6.	Area,	field ar	nd particular	Area		Field		Specialty
	specia	lty of n	naster of science	Energetic	•	Thermoen	ergy	IC engines and
	degree	e		Mechanic	al			environment
				engineeri	ng			
7.	Area,	field ar	nd area of	Area		Field		Specialty
	doctor	al degr	ree	Energetic	,	Thermoen	ergy	IC engines and
				Mechanic	al			environment
				engineeri	ng			
8.	_	•	state the	Institution	n		Title and	l area
			here he/she	Universit	y of St. Cy	ril and	Docent,	Thermotechnics and
			e title and area in	Methodiu	s in Skopje	e, Faculty of	Thermoe	energetics
	which	is nam	ied	Mechanic	al engineer	ring		
9.	List of	f course	es that the teacher	is lecturing	separately	for first, sec	ond and th	nird cycle
	9.1.	List o	of courses that the t	teacher is le	ecturing in	the first cycle	2	
		No.	Course			Study progra	am/institu	tion
		1.	Design and tuning	ng of IC en	gines	TI, MFS		
		2.	Energy from wa	ste		EE, MFS		
		3.	Fuels and engine	es		All, MFS		
		4.	Environmental i	mpact asse	ssment	EE, MFS		
			from energy pro	cesses				
	9.2.	List o	of courses that the t	teacher is le				
		No.	Course			Study progra	am/institu	tion
		1.	Waste treatment	technolog	ies	EE, MFS		
		2.	Energy manager	ment		BZPR, MFS	•	
		3.	IC engines adva	nced techn	ology 1	TI, MFS		
	9.3.	List o	of courses that the t	teacher is le	ecturing in	the third cycl	e	
		No.	Course			Study progra	am/institu	tion
		1.						
10.	Selecte	ed worl	k in the past five y	ears				
	10.1.	Relev	ant scientific print	ted paper (ı	up to 5)			
		No.	Author		Title			Publisher/year
		1.	Dame Dimitrovs	ki	Introducir	ng natural gas	as a	Combustion

		T		
			second fuel and reconstruction	Institute, Western
			of a diesel engine to use dual	States, USA, 2008,
			fuel technilogy – emissions,	University of
			economy	Southern California
	2.	Dame Dimitrovski	Using CNG and Diesel in the	Proceedings of the
			City Bus Transport in Skopje	2008 Technical
				Meeting of the
				Central States
				Section of The
				Combustion
				Institute, USA,
				2008
	3.	Dame Dimitrovski	Union Regulations of Road	JEPE
			Transport Air Pollution and Its	
			Implementation in the	
			Macedonia	
	4.	Zoran Markov, Dame	Production and Utilising of	JEPE
		Dimitrovski	Biogas and Other Measures for	
			Increasing Energy Efficiency	
			in the Municipal Wastewater	
			Treatment Plant	
	5.	Dame Dimitrovski,	Possible directions for strategic	Proceedings of the
		Martina Dimeska	connection of Republic of	Institute of Gas
			Macedonia to the European	Technology
			natural gas streams	
10.2.	Partio	cipation in scientific national	and international projects (up to 5	5)
	No.	Author	Title	Publisher/year
	1.	Mile Dimitrovski,	Adjustment of the car park -	Ministry of
		Vanco Donev,	buses JSP and the use of eco	education and
		Elenior Nikolov,	fuels, natural gas, development	science, Skopje
		Dame Dimitrovski	project	2003
	2.	Dame M. Dimitrovski	Using of Biogas for	Project for World
			cogenerative systems at	Scientific
			sanitary landfill - Drisla Skopje	Organization pages
				6+52
Ì	_	Dame Dimitrovski,	Lowering the influence of	National Agency for
	3.	Danie Dilliuovski,	6	Tracional rigority for
	3.	Sonja Filipovska,	using day lights and a mean to reduce the emission from small	Traffic Safety on

			vehicles	Study		
	4.	Dame Dimitrovski,	Emissions and Imissions in the	National Agency fo		
			city of Tetovo, traffic	Traffic Safety on		
			development influence on the	the roads in 2008,		
			imissions,	Study		
10.3.	Print	ed books in the last five years	s (up to 5)			
	No.	Author	Title	Publisher/year		
	1.	Mile Dimitrovski	Publication: Agro Energy study	Study Agro, Energy		
		Dame Dimitrovski	possibilities for the use of	Study nr. 008/2009		
			renewable energy sources in	– Biogas 2009		
			rural areas in the country			
	2.	Dame Dimitrovski	Monograph: Reducing air	2008, Institute of		
			pollution in Skopje by	gaseous technique,		
			replacing existing fossil fuels	Ministry of		
			with natural gas, a candidate	education and		
			for the award Gotse Delchev	science of the		
			2008, Skopje, ISBN 978-9989-	Republic of		
			9812-8-9	Macedonia		
10.4.	Printed professional papers in the last 5 years (up to 5)					
	No.	Author	Title	Publisher/year		
	1.	Dame M. Dimitrovski	Awarded labor original	International Gas		
			research results published in	conference,		
			research results published in scientific reference /	conference, Beograd, Serbia,		
			_			
			scientific reference /	Beograd, Serbia,		
			scientific reference / professional journal with an	Beograd, Serbia,		
			scientific reference / professional journal with an international editorial board:	Beograd, Serbia,		
			scientific reference / professional journal with an international editorial board: Ecological benefits of NG	Beograd, Serbia,		
	2.	Z. Markov,	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded	Beograd, Serbia, 2007		
	2.	Z. Markov, D.Dimitrovski, V.Aleksic	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article	Beograd, Serbia, 2007		
	2.	· ·	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article Development of Gas	Beograd, Serbia, 2007  Proceedings of the		
	2.	· ·	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article Development of Gas Distribution Network for the	Beograd, Serbia, 2007  Proceedings of the Institute of Gas		
	2.	· ·	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article Development of Gas Distribution Network for the city of Kumanovo –	Beograd, Serbia, 2007  Proceedings of the Institute of Gas		
	2.	· ·	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article  Development of Gas Distribution Network for the city of Kumanovo — Challenges and Solutions,	Beograd, Serbia, 2007  Proceedings of the Institute of Gas		
	2.	· ·	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article  Development of Gas Distribution Network for the city of Kumanovo – Challenges and Solutions, International Gas Conference	Beograd, Serbia, 2007  Proceedings of the Institute of Gas		
		D.Dimitrovski, V.Aleksic	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article Development of Gas Distribution Network for the city of Kumanovo – Challenges and Solutions, International Gas Conference of South Eastern Europe	Beograd, Serbia, 2007  Proceedings of the Institute of Gas Technology		
		D.Dimitrovski, V.Aleksic  D. Dimitrovski, M.	scientific reference / professional journal with an international editorial board: Ecological benefits of NG buses in Skopje, Awarded article Development of Gas Distribution Network for the city of Kumanovo – Challenges and Solutions, International Gas Conference of South Eastern Europe Virtual pipelines – short cut to	Beograd, Serbia, 2007  Proceedings of the Institute of Gas Technology  International Gas		

		4.	Dame Dimitrovski	Why biogas from agriculture and livestock, haven't became the basis for rural development in Macedonia	Zemak, Ohrid, 2010	
		5.	Done Tashevski, Dame Dimitrovski	Optimization of binary cogenerative thermal power plants with SOFC on solid fuel	JETP	
11.	Super	vision (	(mentorship) of undergraduate	lents		
	11.1.		graduate			
	11.2.	Maste	-	5		
	11.3.	Docto	ral	/		
12.	For me	entors o	ntors of doctoral thesis, selected work for the last four / five years			
	12.1.	Proof public	or international			
		No.	Author	Title	Publisher/year	
		1.	Gordana Popsimonova,	Greenhouse production in	MESJ	
			Biljana Ristovska, Dame	Macedonia – challenges and	77–84, UDC 621,	
			Dimitrovski (CA), Goce	opportunities	CODEN: MINSC5,	
			Georgievski		ISSN 1857 – 5293	
		2.	Dame Dimitrovski,	Review of printed scientific	Mechanical	
			Blagojce Bogatinovski	paper in Mechanical	engineering –	
				engineering up to date MESJ,	Scientific journal	
				review	vol.30, 2012	
		3.	Dame Dimitrovski, Goran	Possibilities for pollution	Mechanical	
			Dimeski	reduction from households by	engineering –	
				implementing natural gas	Scientific journal	
					vol 32-1, 2014	
		4.	Dame Dimitrovski, Mile	Pollution from diesel engine	Mechanical	
			Dimitrovski, Elena	with emphasis on pollution in	engineering –	
			Kitanovska, Done	Macedonia	Scientific journal	
			Tashevski		vol 32-1, 2014	
	12.2.		•	ast two printed scientific papers in international scientif		
			et factor in the related field in			
		No.	Author	Title	Publisher/year	
		1.	Z. MARKOV, D.	Production and Utilising of	Journal of	
			DIMITROVSKI, I.	Biogas and Other Measures	environmental	
			JOVANOSKI, A.	for Increasing Energy	protection and	
			NENCHEV.	Efficiency in the Municipal	ecology, 2013, vol.3	

				Wastewater Treatm	ent Plant		
	2 M DIMITDONGUL 7		p.1014		T 1	C	
	2. M. DIMITROVSKI, Z.		European Union Re	_	Journal o		
			of Road Transport Air		environn		
	, i		Pollution and Its	1 FM	protection		
		KOCHUBOVSKI.		Implementation in the FYR		ecology,	2013,
	_			Macedonia p.813		vol.3A	
	3	Done Tashevski, Dame	•	Optimization of bir	=	Chemical Engineering	
		Dimitrovski		generative thermal	=	Transactions, Journal ISSN: 19749791	
				plants with SOFC of	on solid	15511. 17	747771
	4	D. W. 1. 1.		fuel		<b>T</b>	
	4	D. Tashevski,		Analysis of Parame		Internation	
		R. Filkoski,		Affecting the Efficiency	=	Journal o	
		D. Dimitrovski,		Optimization of Bi	=	Mechani	
		I. Shesho		Co-generation Pow	er Plants.	Engineering and	
						Technology	
						(IJMET), (ISSN 0976–6359 Online),	
						Volume 5, Issue 10,	
				Model for calculation of NOx from public transport in the			190, India,
							F 7,5377)
	5	Dame Dimitrovski, Mi	le			JEPE, 20	
		Dimitrovski, Antonio	10			accepted	
		Jovanovski		city of Skopje	ore in the	publishii	
12.3.	Proof		onal	meetings' participation in the past			
	No.	Author	Titl		Internationa		year
					meeting/co	nference	
	1.	D. Dimitrovski,	Pol	lution from Diesel	1 <sup>st</sup> Internati		12-14
		M. Dimitrovski,		gines do to Increase	Medical		September
		E. Kitanovska,	_	Imported Vehicles Conferen			2014.
		D. Tashevski:	in F	FYR-Macedonia.	"Environme	ent and	
			(IO	C - 2 <sup>nd</sup> Award)	Public Health"		
					MED ENV	2014,	
					Mamaia, Romania,		
	2.	D. Dimitrovski,	Bio	gas – Overview of	16 <sup>th</sup> Symposium on		22-25
		M. Dimitrovski,	the	Possibilities for	Thermal Science		October,
		G. Popsimonova,	Imp	olementation in the and Engine		ering of	2013.
		D. Tashevski	Ma	cedonian	Serbia –		

	Agricultural Sector.	SIMTERM 2013, p.	
	(IOC)	11, Sokobanja,	
	(IOC)	Serbia,	
D. Dimitmavalsi	Possible Scenarios for	1 <sup>st</sup> Internatinal	20-23
D. Dimitrovski,			
K. Belcheska,	Achiving the Goal	U.O.C. – B.E.N.A.	June,
D. Tashevski,	20/20/20 in FYR-	- Conference "The	2013.
M. Kocubovsk	Macedonia.	Sustainability of	
		Pharmaceutical,	
		Medical and	
		Ecological	
		Education and	
		Research –	
		SPHAMEER –	
		2013", p. 6,	
		Constanca,	
		Romania. (IOC)	
D. Tashevski,	Energy and Ecology	1 <sup>st</sup> Internatinal	20-23
D. Dimitrovski,	Benefits of	U.O.C. – B.E.N.A.	June,
Z. Markov,	Independent	- Conference "The	2013.
I. Shesho:	SOFC/Gas Turbine	Sustainability of	(IOC)
	Co-generation Power	Pharmaceutical,	
	Plant on Natural Gas.	Medical and	
		Ecological	
		Education and	
		Research –	
		SPHAMEER –	
		2013", p. 6,	
		Constanca,	
		Romania,	
D. Dimitrovski,	Strategic connection	International gas	2012
M. Dimevska,	of Republic of	conference of South	-
D. Tashevski:	Macedonia to the	Eastern Europe,	
2. Tashe , shi.	European natural gas	Sarajevo, Bosnia	
	streams. (IOC)	and Herzegovina,	
	streams. (100)	and Herzegovina,	

Add. 4		Information about the teachers that lecture at the first, second and third study program and are mentors on the doctoral thesis				
1.	1. Name (First, Last)		Darko Babunski			

2.	Date of	of birth		04.10.1975					
3.	Scientific degree / Title			Ph.D./Assistant Professor					
4.	Title of the scientific degree			Ph.D. in Technical Sciences					
5.	Year and institution of the			Education		Year		Institution	
	scientific degree			Ph.D		2012		Faculty of	
								Mechanical	
								Engineering - Skopje	
					M.Sc			Faculty of	
								Mechanical	
								Engineering - Skopje	
				B.Sc	B.Sc 1999			Faculty of	
								Mechanical	
								Engineering - Skopje	
6.			nd particular	Area		Field		Specialty	
	specia	lty of n	naster of science	Technical	Sciences	Mechanical		Control Systems	
	degree					Engineering			
7.			nd area of	Area		Field		Specialty	
	doctor	al degr	ree	Technical	Sciences	Mechanical		Control Systems	
						Engineerin			
8.	If employed, state the			Institution		Title and area			
			nere he/she works	Faculty of Mechanic		cal Assistar		ant Professor,	
			and area in which	Engineering –Skopje				, ,	
	is nan				1.0				
9.		1	es that the teacher i					third cycle	
	9.1.		f courses that the to	eacher is le				•	
		No.	Course	Logic Controllers		Study program/institution			
		1.	Programmable L			Automatics and Control Systems, Faculty			
			C			of Mechanical Engineering – Skopje			
		2.	Control and auto	mation of f		Energetics and Ecology/ Faculty of Mechanical Engineering – Skopje			
		3.	Description in the in	duster and					
		3.	Practice in the in	=		Automatics and Control Systems, Faculty of Mechanical Engineering – Skopje			
	9.2.	Listo	medium enterpri			the second cycle			
	7.∠.	No.	Course	Cachel 18 16				tution	
		1.		ol of machines and		Study program/institution Automatics and Control Systems, Faculty			
		1.	processes			of Mechanical Engineering – Skopje			
		2.	Real – Time con	trol systems		Automatics and Control Systems, Faculty			
		2.	Hardware-in-the	•		of Mechanical Engineering – Skopje			
	9.3.	List o		ses that the teacher is lecturing in					
		No.	Course			Study program/institution			
		1.				budy program institution			
10.	Selected work in the past five years								
	10.1. Relevant scientific printed paper (up to 5)								
	10.1.	No.	Author	- = paper (u	Title			Publisher/year	
	l .	2.0.			=				

	1.	I. Mihajlovic, D. Babunski et al.	"Comparison of Spectrolyser Device Measurements with Standard Analysis of Wastewater Samples in Novi Sad, Serbia "	Bulletin of Environmental Contamination and Toxicology, September 2014, Volume 93, Issue 3, pp 354-359 SCI=1.216
	2.	V. Iliev, D. Babunski, et al.	Direct Digital Control of HVAC System and CO2- Based Demand Controlled Ventilation	International Journal of Innovative Technology and Exploring Engineering <sup>TM</sup> (IJITEE), p.12-17, Vol. 3, no.9 (2014), SCI=0,546
	3.	D. Babunski, E. Zaev, A. Tuneski	Simulation of Load Rejection on a Nonlinear Hydro Power Plant Model with Mixed Mode Nonlinear Controller	proceedings of MECO 2012 conference, Bar, Monteenegro, pp. 275-278
	4.	E. Zaev, D. Babunski et. al	HPP Simulator for real-time simulation and SCADA software testing	Proceedings of the 6- th Annual South East European Doctoral Students Conference, Thessaloniki, Greece, 2011
	5.	D. Babunski, E. Zaev, A. Tuneski	SCADA simulation for monitoring and control of HPP using Robust Law	Proceedings of the IX National Conference With International Participation ETAI 2009, Section A, pp 90, Ohrid, R. Macedonia, 2009
-		1	and international projects (up to	
	No.	A Tunaski D Rabunski	Title  Development of Environment	Publisher/year TEMPUS Joint
	1.	A. Tuneski, D. Babunski et al.,	Development of Environment and Resources Engineering Learning - DEREL	Project JP-511001-2010, 2010-2014
	2.	A. Tuneski, D. Babunski et al.,	Development of Environment and Resources Engineering Curriculum -	TEMPUS Joint European Project JEP-

				DE	REC		19028_20	042005-			
							2008,				
		3.	A. Tuneski, D. Babunski		onitoring and Im	proving	NATO Pa				
			et al.,		Rivers in the		for Peace	cofinanced			
				Vai	dar/Axios Water	shed	project, Sf	P981877,			
				(M)	RVAX)",		2006-2008	3			
	10.3.	Printe	ed books in the last five ye	ars (up	to 5)						
		No.	Author	Titl	e		Publisher/	year			
		1.									
	10.4.	Printe	ed professional papers in the	he last 5	years (up to 5)						
		No.	Author	Titl	e		Publisher/	year			
		1.									
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students										
	11.1.		graduate								
	11.2.	Maste	r		1						
	11.3.	Docto									
12.			of doctoral thesis, selected								
	12.1.		of printed scientific paper				or internati	onal			
		-	cations in the related field			years	T				
		No.	Author	Ti	tle		Publisher/	year			
		1.									
	12.2.		of at least two printed sci			onal scient	ific journals	that have			
			et factor in the related field				T				
		No.	Author	Ti	tle		Publisher/	year			
		1.									
	12.3.		of at least three internation		tings' participati						
		No.	Author	Title		Internatio		Year			
						meeting/c	onference				
		1.									

App	. 4	Information about the teachers that lecture at the first, second and third study								
		pr	ogram and are me	entors on the doct	oral thesis					
1.	Name (Fi	irst, Last)	Emil Zaev							
2.	Date of b	irth	13.02.1976							
3.	Scientific	degree / Title	Ph.D./Assistant P	rofessor						
4.	Title of the	he scientific degree	Ph.D. in Technical Sciences							
5.	Year and	institution of the	Education	Year	Institution					
	scientific	degree	Ph.D	2013	Faculty of					
					Mechanical					
					Engineering - Skopje					
			M.Sc	2006	Faculty of					
					Mechanical					
					Engineering - Skopje					

				B.Sc		1999		Faculty of	
				D.SC				Mechanical	
								Engineering - Skopje	
6.	Area	field ar	nd particular	Area		Field		Specialty Skopje	
0.			master of science		l Sciences	Mechanical		Control Systems	
	degree	•	indiction of science	1 commea	Detences	Engineerin		Control bystems	
7.			nd area of	Area		Field	<u>-6</u>	Specialty	
		ral degi			l Sciences	Mechanica	nl	Control Systems	
		8				Engineerir		J	
8.			state the	Institutio	n	, <u>U</u>		nd area	
			here he/she works	Faculty o	of Mechanic	:al	Assista	ant Professor,	
			and area in which		ing –Skopje		Autom	*	
	is nan								
9.			es that the teacher i					third cycle	
	9.1.		of courses that the t	eacher is le	ecturing in t				
		No.	Course	~ .		Study progra			
		1.	Monitoring and	Control				ntrol Systems, Faculty	
			C + 1 1 +	· · · ·	of Mechanical Engi				
		2.	Control and auto	mation of	HEP	Energetics and Ecology/ Faculty of Mechanical Engineering – Skopje			
		3.	Drastice in the in	duater an	all and				
		3.	Practice in the in medium enterpri	-	ian and			ntrol Systems, Faculty neering – Skopje	
	9.2.	Listo	of courses that the t		ecturing in t			neering – skopje	
	7.2.	No.	Course	cacher is it	cturing in t	Study progra		tution	
		1.	Proportional tech				ntrol Systems, Faculty		
		1.	Troportional teel	morogy		of Mechanical Engineering – Skopje			
		2.	Real – Time con					ontrol Systems, Faculty	
			Hadrware-in-the	-		of Mechanical Engineering – Skopje			
	9.3.	List o	of courses that the t	eacher is le	ecturing in t	he third cycle	e		
		No.	Course			Study progra	am/insti	tution	
		1.							
10.	Select	ed worl	k in the past five ye	ears					
	10.1.	Relev	ant scientific print	ed paper (u	ip to 5)				
		No.	Author		Title			Publisher/year	
		1.	Emil Zaev, Gerha			Efficient Activ	/e	SICFP2013, Sweden,	
			and Hubert Kargl			Damping"		2013	
		2.	Gerhard Rath and	l Emil	-	Pressures in	a	Scandinavian	
			Zaev		Position C		<b>.</b>	International	
					-	th Separate N	/leter-	Conference on Fluid	
		2	F 17 C 1	1D 4	in and Me		1	Power, 2013	
		3.	Emil Zaev, Gerha	ırd Kath,		ulator for Re		DSC2011,	
			et al.			ulation and S	CADA	Thessaloniki,	
		1	Emil Zoov, Corbs	and Doth	Software T			Greece, 2011	
		4.	Emil Zaev, Gerha	uu Kalii,	"Design of a Hydraulic			SysStruc 2011,	

			Hubert Kargl	Damper for Heavy	Resita Romania,				
				Machinery"	2011				
		5.	Emil Zaev, Gerhard Rath,	"Hydro Power Plant	MECO 2012, Bar,				
			et al.	Governor Testing Using	Montenegro, 2012				
				Hardware-In-The-Loop					
				Simulation",					
	10.2.			and international projects (up to 5)					
		No.	Author	Title	Publisher/year				
		1.	Atanasko Tuneski, Emil	Development of Environment	TEMPUS Joint				
			Zaev et al.,	and	Project JP-511001-				
				Resources Engineering	2010, 2010-2014				
				Learning - DEREL					
		2.	Atanasko Tuneski, Emil	Development of	TEMPUS Joint				
			Zaev et al.,	Environment and Resources	European Project				
				Engineering Curriculum -	JEP-				
				DEREC	19028_20042005-				
					2008,				
		3.	A. Tuneski, Emil Zaev, et	"Monitoring and Improving	NATO Partnership				
			al.	the Rivers in the	for Peace cofinanced				
				Vardar/Axios Watershed	project, SfP981877,				
				(MIRVAX)",	2006-2008				
		4.	A. Tuneski, D. Babunski,	"Proektiranje na SCADA	proekt za tehnoloshki				
			E. Заев i dr.	sistem za dalechinsko	razvoj finansiran od				
				upravuvawe i monitoring na	GTZ (German				
				tehnoloshkite procesi vo	Technical				
				prehrambena i cementna	Cooperation) 2003				
				industija"					
		5.	A. Tuneski, D. Babunski,	"Optimalno, robustno	Ministerstvoto za				
			Е. Заев i dr.	upravuvawe na nelinearni	obrazovanie i nauka				
				sistemi so nadvoreshni	na R. Makedonija,				
				poremetuvanja"	2003-2006				
	10.3.	Printe	ed books in the last five years	<u>``</u>					
		No.	Author	Title	Publisher/year				
		1.							
	10.4.	Printe	ed professional papers in the	last 5 years (up to 5)					
		No.	Author	Title	Publisher/year				
		1.							
11.	Super	vision (	(mentorship) of undergraduat	e, master and doctoral studies stu	udents				
	11.1.	Under	graduate	5					
	11.2.	Maste	r						
	11.3.	11.3. Doctoral							
12.	For me		· · · · · · · · · · · · · · · · · · ·	ork for the last four / five years					
	12.1.			n international scientific journals	or international				
		public	cations in the related field (up	to 6) in the past five years					

	No.	Author		Title		Publisher/	year			
	1.									
12.2.	Proof	of at least two printed sci	ientii	fic papers in internati	onal scient	ific journals	s that have			
	impact factor in the related field in the past five years									
	No.	Author		Title	Publisher/year					
	1.									
12.3.	Proof	of at least three internation	onal	meetings' participation	on in the pa	ast four year	rs			
	No.	Author	Titl	e	Internatio	nal	Year			
					meeting/conference					
	1.									

Add	. 4	I					second and third study			
				rogram and are men	tors on the	doctora	al thesis			
1.	Name (F		Last)	Emilija Celakoska						
2.	Date of			13.11.1975						
3.			ree / Title	Ph.D						
4.			ientific degree	Ph.D. in Mathematic						
5.			itution of the	Education	Year		Institution			
	scientifi	c deg	ree	Ph.D	2010		Faculty of Natural			
							Sciences and			
							Mathematics - Skopje			
				MSc	2006		Faculty of Natural			
							Sciences and			
							Mathematics - Skopje			
				BSc	1999		Faculty of Natural			
							Sciences and			
							Mathematics - Skopje			
6.			d particular	Area	Field		Specialty			
	specialty			Mathematical	Mathematics		Differential Geometry			
	science			Sciences						
7.	,		d area of	Area	Field		Specialty			
	doctoral	degre	ee	Mathematical	Mathemat	ics	Differential Geometry			
				Sciences		r				
8.	If emplo			Institution		Title a	and area			
			ere he/she	Faculty of Mechanic	al	Assist	ant Professor,			
			e title and area	Engineering -Skopje	<b>;</b>	Mathe	matics			
0	in which				ry for Eight or		ad thind avala			
9.				r is lecturing separatel			na unira cycle			
	l —		ist of courses that the teacher is lecturing in the first cycle  No.   Course   Study program/institution							
	l	Vo.	Course	41 41			ILULION			
	l ——		Engineering m		PINF, IND,	DΚ				
	l <u> </u>	2.	Structured prog		MHT	. 11				
	] [3	3.	Basics of progr	rammıng	All of 4-year	ir studie	S			

		4.	Programming languages		PINF			
		5.	Object oriented programm	ning	PINF			
	9.2.		f courses that the teacher is					
		No.	Course	<u> </u>	Study program/institution			
		1.			Study program/institution			
	9.3.	List o	f courses that the teacher is	lecturing i	n the third cycle			
		No.	Course	<u> </u>	Study program/insti	tution		
		1.	Nonholonomic geometry	in	Mechanical enginee			
			mechanical systems		Mechanical Engine	•		
10.	Selecte	ed worl	k in the past five years					
	10.1.	Relev	ant scientific printed paper	(up to 5)				
		No.	Author	Title		Publisher/year		
		1.	Trencevski Kostadin,	Research	of Gravitation in	Springer/ 2011, Int. J		
			Celakoska	Flat Minl	kowski Space	Theoretical Phys		
			Emilija, Balan Vladimir			50(1),1-26 (IF2012:		
		_				1.086)		
		2.	Trencevski Kostadin,		Precession and	Springer/ 2011		
			Celakoska Emilija		ragging Observed	Cent Eur J Phys 9(3),		
					Massive Objects	654-661 (IF2012:		
		3.	Calabaaka Emiliia		e to a Gyroscope  Link Problem and	0.905)		
		3.	Celakoska Emilija, Chakmakov Dushan	Solutions		Math. Nat. Sci., South- West Univ. "Neofit		
			Chakmakov Dushan	Solutions	)	Rilsky", Blagoevgrad/		
						2011, Proc. IV Int. Sci		
						Conf, FMNS2011.		
						Vol.1, 16-21.		
		4.	H.M.Srivastava, N.	Some Dis	stortion and Other	Victoria Univ./2012		
			Tuneski, E. Celakoska	Propertie	s Associated with a	Austral. J Math. Anal.		
				Family of	f the n-Fold	Appl, 9(2) 1-17		
				Symmetr	ic Koebe Type			
				Function	S			
		5.	K.Trenchevski, E.		s of motion for two-	Taylor&Francis/2011		
			Celakoska		blem according to	J. Dyn. Syst. Geom.		
					ver inside the	Theor. 9 (2), 115-135.		
				gravitatio				
	10.2.		ripation in scientific national		rnational projects (up	· ·		
		No.	Author	Title		Publisher/year		
		1.	Nikola Tuneski, PhD		c theory of	Ministry of education		
				runctions	and applications	and science/ 2001-2004		
		2.	Kostadin Trenchevski,		ial-geometric and	Ministry of education		
			PhD		al problems and	and science, 2006-2009		
				their app				
		3.	Dushan Chakmakov,	Combini	ng and optimizing	Ministry of education		

			PhD	alassifians for notton	•••	and science	2002		
			riiD	classifiers for patter recognition application		2006	e, 2005 -		
		4.	Nilsola Tunaski DhD				faduation		
		4.	Nikola Tuneski, PhD	Theory of univalent		Ministry of education and science and			
				functions and applie	zations	TUBITAK-Turkey,			
							•		
		_	Ziana a 1 Tana a a ali: DlaD	Times and Mantine		2006 - 200			
		5.	Zivorad Tomovski, PhD	Linear and Nonline	ar	Bilateral p			
				Fractional Models			a - Austria,		
	10.2	D : .	11 1 1 1 1 0	( , , 5)		2011-2013	)		
	10.3.		d books in the last five ye			D 11' 1 /			
		No.	Author	Title		Publisher/			
		1.	N.Tuneski, E. Celakoska	Introduction to MA	TLAB		Mechanical		
							ng –Skopje,		
	10.1					2010			
	10.4.		d professional papers in th		)				
		No.	Author	Title		Publisher/			
		1.	Celakoska	On Radial Deforma	tions of	Proceedin			
			Emilija, Trencevski	Rotating Disc		congress of			
			Kostadin			mathemati			
						-	of Macedonia,		
						2011, 215	-221		
11.			mentorship) of undergrade	uate, master and docto	ral studies	students			
	11.1.		graduate						
	11.2.	Maste							
	11.3.	Docto							
12.			of doctoral thesis, selected						
	12.1.		of printed scientific paper		•	als or intern	ational		
			eations in the related field		ve years				
		No.	Author	Title		Publisher/	year		
		1.							
	12.2.		of at least two printed scie		ational scie	entific journ	als that have		
		impac	ct factor in the related field in the past five years						
		No.	Author	Title		Publisher/	year		
		1.							
	12.3.	Proof	of at least three internatio	<u> </u>		1	ears		
		No.	Author T	itle	Internatio		year		
					meeting/c	conference			
Ì		1.							

Add	l. 4	Inform	nation about the teachers that lecture at the first, second and third study program and are mentors on the doctoral thesis						
1.	1. Name (First, Last)		Bojan Prangoski						
2.	2. Date of birth		29.07.1984						

3.	Scient Title	ific de	gree /	Ph.D.					
4.	Title o	of the ific deg	gree	Ph.D. in	Theor	retical Mathen	natics		
5.	Year a	and		Education	on	Institution			
	institu	tion of	the	B.S. in	Mathematics		Faculty of Science, University Ss. Cyril and Methodius, Skopje		
	scient	ific deg	gree						
		•		M.Sc. ir			Faculty of Science, University Ss. Cyril and		
				Theoret			Methodius, Skopje		
				Mathem			The understanding of the state		
				Ph.D. in		2013	Faculty of Science, University of Novi Sad,		
				Theoret		2013	Novi Sad, Serbia		
				Mathem			Trovi Bud, Beroid		
6.	Area	field a	nd	Area	iunes	Field	Specialty		
0.	partic			Theoret	ical	Functional	Theory of distributions		
	specia			Mathem		Analysis	Theory of distributions		
	_	er of science		Within	autos	2 mary sis			
	degree								
7.	Area, field and		nd	Area		Field	Specialty		
		f docto		Theoret	ical	Functional	Ultra distributions, Pseudo differential		
	degree			Mathem		Analysis	operators		
8.		oloyed,	state	Instituti		1	Title and area		
		stitutio		Faculty of Mechanical Engineering, Dept. of Mathematics and					
	where	he/she	•				Assistant professor		
	works	and th	e title						
	and ar	ea in w	vhich						
	is nam			Informatics, University					
			41 4	"Ss. Cyril and Methodius"			(1.6.6)		
9.				the teacher is lecturing separately for first, second and third cycle ses that the teacher is lecturing in the first cycle					
	9.1.				ie teaci				
		No.	Cour	se		Study progra	m/institution		
	0.2	1.	<u> </u>	.11					
	9.2.				ie teac	ner is lecturing	g in the second cycle		
		No.	Cour	se					
		1.							
	9.3.				e teac	her is lecturing	g in the third cycle		
		No.	Cour	se					
		1.	<u> </u>						
10.				e past five					
	10.1.					paper (up to 5)			
		No.	Autho		Title		Publisher/year		
		1.	S.Pilip		On th		Monatshefte fur Mathematik, 173 1 (2014),		
	B.P.		B.Prai	ngoski			83-105		
					Roun	nieu			

				υ	ıltradistributions			
					hrough the ε			
					ensor product			
		2.	B.Prangoski		Laplace transform	Filomat	Filomat, <b>27</b> 5 (2013), 747-760	
			C		n spaces of			
					ıltradistributions			
		3.	S. Pilipovic,	_	Anti-Wick and	J. Math	. Pures Appl.,	online April 2014,
			B. Prangosk	i V	Weyl quantization	http://d	x.doi.org/10.10	016/j.matpur.2014.04.011
				C	on			
				u	ıltradistribution			
					spaces			
	10.2.	Parti	cipation in so		fic national and i	nternationa	al projects (up t	to 5)
			Γitle	Publish	er/year			
		1.						
	10.3.				st five years (up to			
				Title	Publish	Publisher/year		
		1.						
	10.4.				pers in the last 5			
		No.	Author	1	Title	Publish	er/year	
		1.						
11.				of ur	ndergraduate, mas	ster and do	ctoral studies s	students
	11.1.		ergraduate		-			
	11.2.	Mast			-			
10	11.3.	Doct			-		(a)	
12.					selected work for			
	12.1.		-				•	ls or international
					ted field (up to 6)			
		No.	Author		Title	Publish	er/year	
	10.0	1.	f - f - 4 1 4 4		:		4: 1 : .	
	12.2.							ntific journals that have
		No.	Author	e reia	ated field in the p Title	Publish		
		1.	Author		Tiue	Publish	er/year	
	12.3.		f of at least th	roo ii	nternational meet	ings' parti	aination in the	nost four years
	14.5.	No.	Author	Title		Internatio		ī -
		INO.	Audioi	1 1116			conference	year
		1.				meeting/C	omercice	
		1.						

## 18. Teachers statement of consent for participation in teaching specific subjects of the study program (only for teachers that are not employed at the faculty of Mechanical engineering - Skopje)

The document is attached in Appendix 5 at the end of this elaborate.

19. Consent from the higher educational institution for teacher participation in the realization of the study program (only for teachers that are not employed at the faculty of Mechanical engineering – Skopje)

Not applicable

#### 20. Information about the number of students enrolling in the first year of the study program

According to estimates of the spatial features, the equipment and personnel potential for study program in Sustainable energy and environment it is planned to enroll up to 30 students per year.

#### 21. Information for providing required and additional literature

Predicted required and additional literature (given in the subject programs) is provided by subject teachers, and some are located in the library of the Faculty of Mechanical Engineering. As required literature will be used literature translated and distributed by the Government from the subject programs where it exists.

#### 22. Information for the web-page

All information about the study program at faculty of Mechanical engineering – Skopje are available at the web page of the faculty: <a href="https://www.mf.edu.mk">www.mf.edu.mk</a>

## 23. Professional or scientific name by which the student acquires after completion of the study program

Students who get university, academic one year full time studies in the second cycle at the Sustainable energy and environment study program acquires the following title:

In Macedonian:

МАГИСТЕР ПО ТЕХНИЧКИ НАУКИ ОД ОБЛАСТА НА МАШИНСТВОТО

In English:

MASTER OF SCIENCE IN MECHANICAL ENGINEERING

#### 24. Activities and mechanisms to develop and maintain the quality of teaching

#### 24.1. Teaching methods

The study program is implemented as a full-time study with the following types of instruction: lectures, lab work, computer tutorials and seminars. Regular classes are implemented for subjects where there are 5 or more students. Where the number of students is less than 5, it is organized mentor teaching.

The load of students is realized through specific types of activities, such as individual work, assignments and projects aimed at the study of practical cases relevant areas of research studies, teamwork, research, self-study and participation in workshops. Particular attention is paid to individual work with students in the form of mentoring and consultancy work.

The scope and organization of the studies were conducted in accordance with Article 112 of the Law on Higher Education of the Republic of Macedonia and Article 23 of the Rules of the first and second cycle studies of Ss according to ECTS methodology, or total student workload expressed in volume of 60 credits per year after 30 hours of placement credit, which is equal to 1800 hours per load. The number of hours per load distributed on the number of weeks in two semesters, 30 weeks weekly expresses the total student workload (teaching and specific forms of activity).

#### 24.2. Verification methods of knowledge

Verification of knowledge is done through continuous assessment and final examination through. In the course programs that are implemented in the point 13 of this elaborate for each subject individually it is determined how to assess the knowledge and appreciation of the proportion of continuous assessment activities or defined points that provides the student with the implementation of individual actions defined in the respective program.

The final assessment of each of the subjects of this study program is formed on the basis of continuous assessment and final results achieved by the student. The final grade is based on the total score of the final or continuing assessment student won, and the maximum number of possible score is 100. The assessment is made pursuant to Rule 35 of the Rules of the first and second cycle studies Ss applying numerical scoring system respecting equivalent alphabetic grading system according to ECTS.

Students conquer this study program by passing the exams and accomplishing a certain number of ECTS credits, in accordance with the structure of the study program.

### 24.3. Activities and mechanisms for the development and maintenance of the quality of the study program

In order to develop and maintain the quality and quality control in the study program are implemented methods of continuous evaluation, self-evaluation and system for assessing the quality of the teaching staff in accordance with the provisions of the Law on Higher Education of the Republic of

Macedonia and article 73 and 77, and in accordance with the established mechanisms for evaluation within Ss.

The provision and maintenance of quality and quality control will be carried out in accordance with the mechanisms and activities that are conducted for all study programs and apply to all participants in the educational process of the faculty of Mechanical engineering. Mentioned activities and mechanisms of self-evaluation concerning:

- development of curricula,
- realization of the curriculum,
- student assessments,
- preparation of the thesis,
- assessing the quality of teaching by students with surveys at the end of each semester for each subject,
- assess the quality of study programs by students awarded the diploma and other procedures relating to resources and logistics of the teaching process

Evaluation by students for every subject, and for study programs in general are consistently implemented and taken into account in the evaluation and development of all study programs.

The activities for the development and maintenance of quality control and the quality of the study program, apply monitoring the situation with the success of students and the implementation of the program by the teaching council of Mechanical Engineering. Teaching council conducted an internal evaluation of the content of the study program in order to improve and develop in line with modern developments in the field.

24a. Results derived from the Guidelines for self-evaluation only basis of the evaluation and the evaluation procedures adopted by universities Agency for Evaluation of Higher Education in the Republic of Macedonia and the Interuniversity Conference of Macedonia (Skopje, Bitola, September 2002).

Taking into consideration the orientation for continuous inspection, evaluation, the provision and improvement of the quality in all the areas of its action at the University "Sv. Cyril and Methodius "in Skopje the fourth Foreign evaluation by a team of experts nominated by the European association of universities is in progress. The results are published in the report for the subsequent evaluation of Ss Cyril and Methodius University in Skopje for the period 2010/11 to 2012/13 years.

Also at the web site of Ss results are published from the report for the subsequent evaluation of Ss Cyril and Methodius University in Skopje for the period 2006/07 to 2009/10 years, issued by the European Association of Universities, 2011 year.

http://ukim.edu.mk/mk\_content.php?meni=155&glavno=1

# COURSES OFFERED AT UNIVERSITY LEVEL - LIST (ALL M5 COURSES)



#### REPUBLIC OF MACEDONIA SS. CYRIL AND METHODIUS UNIVERSITY IN SKOPJE FACULTY OF MECHANICAL ENGINEERING - SKOPJE



Rugjer Boskovik bb, P. O. Box 464 • 1000 Skopje, Republic of Macedonia

Your sign:

Our sign:

Number:

Date:

STATEMENT

I am confirming that the following professors who are employed at the Faculty of Mechanical Engineering in Skopje will teach at the new study program in Sustainable energy and environment (second cycle), as follows:

- 1. Professor Armenski Slave
- 2. Professor Dimitrovski Mile
- 3. Professor Chakmakov Dusan
- 4. Professor Tuneski Atanasko
- 5. Professor Malcheski Aleksa
- 6. Professor Stojkovski Valentino
- 7. Professor Tuneski Nikola
- 8. Professor Atanas Kochov
- 9. Associate professor Tashevski Done
- 10. Associate professor Filkoski Risto
- 11. Associate professor Markov Zoran
- 12. Assistant professor Lazarevska Ana
- 13. Assistant professor Dimitrovski Dame
- 14. Assistant professor Babunski Darko
- 15. Assistant professor Zaev Emil
- 16. Assistant professor Celakoska Emilija
- 17. Assistant professor Prangoski Bojan

Dean

Kochov

Prof. dr. Atanas

Машински факултет Број 02-3920/1 25.12.2014 год. Скопје

Врз основа на член 103 став 5 и член 104 од Законот за високото образование ("Сл. весник на РМ" бр. 35/08....130/14), член 2 и 3 од Правилникот за донесување на студиски програми во рамките на Универзитет "Св.Кирил и Методиј" во Скопје (Универзитетски гласник број 140/2009), како и член 43 од Правилникот за внатрешните односи и работењето на Машинскиот факултет во Скопје во состав на Универзитетот "Св. Кирил и Методиј" во Скопје - Пречистен текст (Универзитетски гласник број 282/2014), Наставно-научниот совет на Факултетот, на 30-та редовна седница одржана на 25.12.2014 година, ја донесе следнава

#### ОДЛУКА

за основање на студиска програма на втор циклус студии на Машински факултет во Скопје - на англиски јазик

- 1. Се основа студиска програма "Sustainable Energy and Environment" на втор циклус студии на Машински факултет во Скопје во состав на Универзитетот "Св. Кирил и Методиј" во Скопје, развиена во рамките на програмата за Високо образование во земјите од западен Балкан и Норвешкиот универзитет за Наука и Технологија.
- 2. Студиската програма е од видот на академски универзитетски магистерски студии, се реализира на англиски јазик преку редовни студии, за стекнување научно звање **Master of science in mechanical engineering**.
- 3. Проектот/Елаборатот за студиската програма на втор циклус на студии "Sustainable Energy and Environment" и оваа Одлука да се достават до Сенатот на Универзитетот "Св. Кирил и Методиј" во Скопје надлежен за донесување на студиската програма.
- 4. Составен дел на оваа Одлука е Проектот/Елаборатот за студиската програма втор циклус на студии "Sustainable Energy and Environment".

Одлуката да се достави до: Универзитетот, МОН ,Одборот за акредитација и евалуација на високото образование, продекан за МСНИР, продекан за наставна дејност, секретар, општа служба и архивата на Факултетот.

Проф. д-р Атанас Кочов

Декан

Машински факултет Број 03-3945/4 29.12.2014 год. Скопје

Врз основа на член 67 од Законот за високото образование ("Сл. весник на РМ" број 35/2008, ..... 15/2013, ...130/2014), како и член 3 став 1 алинеја 1 од Правилникот за поблиските критериуми и надлежности на одборите за соработка и доверба со јавноста ("Сл. весник на РМ" број 148/2013), во согласност со член 4 од Упатството за начинот и постапката на кој Одборот за соработка и доверба со јавноста дава мислење по студиските програми (Универзитетски гласник број 255/2013), Одборот за соработка и доверба со јавноста на Машински факултет во Скопје, на 10-та седница одржана на 29 декември 2014 година, го донесе следново

## М И С Л Е Њ Е за студиска програма од втор циклус на студии

- 1. Се дава позитивно мислење за општествена оправданост за организирање на нова студиска програма на англиски јазик "Sustainable Energy and Environment" за втор циклус универзитетски студии на Машинскиот факултет во Скопје во состав на Универзитетот "Св. Кирил и Методиј" во Скопје.
- 2. Организирањето на студиската програма по содржина и обем, како и по општите и специфичните дескриптори на квалификацијата, е во согласност со одредбите на Законот за високото образование ("Сл. весник на РМ" број 17/2011) и со општествените потреби.
- 3. Мислењето се дава до Сенатот на Универзитетот "Св. Кирил и Методиј" во Скопје, за натамошно постапување по однос на студиската програма.

Примерок од мислењето да се достави до: универзитет x2, одборот, продекан за МСНР и архивата на Факултетот.

Претседател на Одборот за соработка и доверба со јавноста

Наташа (зневска