

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

"MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES"

"МОДЕЛИРАЊЕ И СИМУЛАЦИЈА НА ПРОЦЕСИ И ТЕХНОЛОГИИ ЗА ПЛАСТИЧНА ДЕФОРМАЦИЈА"

NOMINATING INSTITUTION

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

SKOPJE, DECEMBER, 2018

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

REFERENCED LEGAL PROVISIONS

The Accreditation Elaborate for **MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES** study programme of second cycle was developed pursuant to the provisions of:

- the Law on Higher Education ("Official Gazette of the Republic of Macedonia" No. 82/2018),
- the Rulebook on the Organisation, Operation, Manner of Decision Making, Methodology for Accreditation and Evaluation, Standards for Accreditation and Evaluation and other issues related to the work of the Board for Accreditation of Higher Education ("Official Gazette of the Republic of Macedonia" No. 151/2012),
- the Decree on the Norms and Standards for Establishing Higher Education Institutions and Performing Higher Education Activities ("Official Gazette of Republic of Macedonia" No. 103/2010 and 168/2010, Appendix 1 – Classification of Scientific and Research Fields in Accordance with the Frascati Classification),
- the Law on the National Qualifications Framework ("Official Gazette of the Republic of Macedonia" No. 137/2013 and 30/2016),
- the Decree on the National Framework for Higher Education Qualifications ("Official Gazette of the Republic of Macedonia" No. 154/2010),
- the Rulebook on the Requirements, Criteria, and Regulations for Enrolment and Studying at the First and Second Cycle of University Studies ("University Herald" No. 254/2013),
- the Rulebook on the Mandatory Components of the Study Programmes of the First, Second, and Third Cycle ("Official Gazette of the Republic of Macedonia" No. 25/2011 and 154/2011),
- the Rulebook on the Content and the Form of the Diploma, Guidelines for Preparation of the Diploma Supplement and Other Public Documents ("Official Gazette of the Republic of Macedonia" No. 102/2018).

Additional document consulted:

- Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), (2015). Brussels, Belgium.
- General Criteria for the Accreditation of Degree Programmes, ASIIN e.V.- Accreditation Agency for Degree Programmes in Engineering, Informatics/Computer Science, the Natural Sciences and Mathematics, 2015.
- Subject Specific Criteria for the Accreditation of Degree Programmes for Mechanical Engineering and Process Engineering, ASIIN e.V.- Accreditation Agency for Degree Programmes in Engineering, Informatics/Computer Science, the Natural Sciences and Mathematics, 2011.
- Assessment of Higher Education Learning Outcomes (AHELO), Organisation for Economic Co- operation and Development (OECD), 2009.
- International Standard Classification of Education: Fields of Education and Training 2013 (UNESCO).

1. HIGHER EDUCATION INSTITUTION MAP

Name of the high education	"Ss. Cyril and Methodius" University in Skopje Faculty
institution	of Mechanical Engineering - Skopje
Address	Rugjer Boshkovic 18, P.O.Box 464, 1000 Skopje
Web page	http://www.mf.edu.mk/
Type of the high education	University / Faculty
institution (public, private-public	
non-profit, private non-profit,	
Data for the founder (private	National assembly of Republic of Macedonia
higher education institution)	National assembly of Republic of Maccoonia
Data for the last accreditation	First cycle – year 2016, decision no. 14-1177 from 17.07.2017
	Second cycle – year 2008 2011 2012 2014 Third
	cvcle – vear 2018
Study and response among for	Descent fielder
study and research areas for which accreditation has been	Research lields: Machinery Energy Industrial Engineering and Management Quality
obtained	Control Materials Environment Transport Transportation
obtained	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 28
institution	members (23 faculties and 5 institutes).
	Faculty of Mechanical Engineering consists of 6 institutes and 1
	department.
Study programs that are realized	First cycle:
in the unit who requires extension	a) Four years academic study programs (240 ECTS):
of the activity by introducing new	Production Engineering
study program	Transport, Mechanization and Logistics
	Thermal Engineering
	Hydraulic Engineering and Water Management
	Materials, processes and inovations
	Industrial Engineering and Management
	Motor venicles
	Mashetronics
	Automation and Control Systems
	Industrial design
	industrial design
	Second cycle:
	a) Study program for one year Master studies:
	Production Engineering
	• Transport and Logistics
	Thermal Engineering
	 Thermal Engineering Automatics and fluids engineering
	 Thermal Engineering Automatics and fluids engineering Materials and Welding
	 Thermal Engineering Automatics and fluids engineering Materials and Welding Industrial Engineering and Management
	 Thermal Engineering Automatics and fluids engineering Materials and Welding Industrial Engineering and Management

	•	Motor Vehicles Sustainable ene	rgy and envir	onment			
	•	Mechatronics					
	•	Product lifecyc	le managemei	nt			
	•	Management and Quality Control					
	b) Na	b) Name of the study program for two year Master studies:					
	•	Industrial design	n and marketin	1g 1 141 1	6.4		
	•	Management o	d Quality Con	trol	lety systems		
	•	Management an	u Quanty Con	101			
	Third	cycle:					
	•	Study program	in Machinery				
	•	Study program	Industrial eng	ineering and	management		
Data for international cooperation	The F	aculty of Mechan	ical Engineer	ing has intern	ational		
in the field of teaching, research	coope	ration in the field	of teaching, 1	research and s	tudent mobil	ity	
and student mobility	within	the CEEPUS mo	obility program	n of teaching	and student		
	stall, I with f	crasmus and Eras	sinus + progra	m (signed se	bttn:	ents	
	//www	v ukim edu mk/do	okumenti m/4	31 Erazmus+	-%20dogovo	ri doc)	
	and ot	her agreements o	n internationa	l cooperation		, ,	
				Ĩ			
Information about area for	1.Tot	al area (gross area	a) (space for t	eaching and y	yard) 9918	m^2	
teaching and research	2.Tot	al teaching area (net space)		4840	m ²	
	3.Nur	nber of lecture the	eaters with to	tal number of	chairs lecture		
	thea	iters with total nu	mber of chair	s 480			
	4.Nur	nber of classroom	ns with total n	umber of chai	rs 24 classroo	oms	
	W1t	n total number of	chairs IIII				
	no.	Types of	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 87	1113 56		
		123	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		
		AI-3	1	43	28		
		A 1 5	1	12	20		
		A1-5	1	43 54 5	28		
		A1-5 F1-2 F2-4	1 1 1	43 54,5 60.4	28 22 32		

		1			
		F2-5	1	42,3	18
		F2-6	1	53,3	22
		К2-6	1	44,7	28
		К2-7	1	44,7	25
		К2-15	1	44.7	20
		К3-9	1	80	40
		K3-1	1	55.1	36
		K3-18	1	55,1	36
Information about the aquinment	1 N	umber of alagara	ama with a	55,1	someeity of
for togehing and reasonab	1. IN	uniber of classic	onis with co	sinputer and	capacity of
for teaching and research	comp	uter workplaces	1	h total 274	~
	-		lassrooms wit		orkplaces
	no.	Types of	Number of	Area in	Total seating
		didactic space	premises	square	capacity
		numeration		metres	274
	1	Computer	10	391	
		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	-	0.	
		Room	1	47.4	24
		К1-2	1	.,,.	2.
		Room	1	47.4	24
		K1-3	1	17,1	21
		Room	1	483	40
		K00III K2_8	1	-0,5	10
		R2-0	1	447	12
			1	44,/	12
		K3-18 Idea lab			
		Dearm	1	25	22
		Koom	1	33	22
		F1-1	1	42	20
		Room	1	43	28
		A1-4			
	• • • •				• 1
	2. Nu	mber of laboratori	les for practica	al teaching .	
	3. Eq	upment for perfor	rming higher o	education acti	vities Equipment
	va	lue		13.829.4	70,00 MKD
Number of students that a	Numb	per of students	1413		
accreditation is obtained for					
Number of students (enrolled for	Numł	per of regular stud	ents on postgr	aduate studie	s 310
the first time)					
Number of staff in teaching and	Struct	ure of the teach	na staff in to	aching soien	ce research
research scientific and teaching	teach	ing and associated	ng statt til K	aching sciell	ee, research,
nositions	teach	Full professor	11105	37	
positions		Aggaziate maf-		<i>31</i> 10	
		Associate profe	SSOF	10	
		Assistant profes	sor	13	

Number of staff with assistant positions	Structure of associates after teaching science, research, teaching and associate titles Teaching Assistant10 1Research assistant1
Teacher : students ratio (number of students per teacher) for each unit separately	1413 / 60 = 23.55
	(<u>http://www.mf.edu.mk/sites/default/files/files/IZVESH</u> <u>TAJ%20za%20samoevaluacija%20na%20MFS%20201</u> <u>3.pdf</u>)
Frequency of self-evaluation process (every year, two years, three years)	In order to provide conditions for continuous improvement of the quality of teaching (educational process) it is provided a self-evaluation in every three years.
Data of last conducted external evaluation of the institution	Report for the subsequent evaluation of Ss Cyril and Methodius University in Skopje issued by the European University Association, 2015: http://www.ukim.edu.mk/dokumenti m/EUA Izvestaj-lektoriran.pdf
Other information that the institution wants to specify as an argument for its success	
Internal mechanisms that ensure quality control for the studies	 Development of teaching contents Completion of the teaching process Evaluation of students Graduation paper, Rating the quality of teaching by students with surveys at the end of each semester for each subject, Evaluate the quality of the study program by the students in the award of the diploma and Other procedures relating to resources and logistics of the teaching process.

1a. General classification descriptors for one-year university studies of second cycle comprising 60 ECTS, organised by the Faculty of Mechanical Engineering – Skopje, pursuant to the Decree on the National Framework for Higher Education Qualifications.

Level in the National Framework for Higher Education Qualifications	Higher Education	Level in the European Framework for Higher Education Qualifications
VIIA	Second cycle of university, academic Master studies, one-year studies, 60 ECTS	7

Knowledge and understanding	The student demonstrates knowledge and understanding in the scientific and research fields of mechanical engineering, power engineering, industrial engineering and management, quality control, materials, environment, traffic and transport, civil and water management, regulation and management of technological processes, organisational sciences and management, which build upon the 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 the scientific fields and areas using appropriate methodology. Demonstrates understanding of the relevant fields that are subject of the study of the second cycle and knowledge of the current issues related to
Applying knowledge and understanding	the scientific research and new sources of knowledge. Is able to apply the acquired knowledge and understanding to the field of the subject of the study programmes demonstrating an in-depth, professional, and competent approach to solving tasks at work or in the profession. Demonstrates competencies for identification, analysis, and problem solving in the scientific subject areas from the second cycle of studies. Is capable of finding and supporting arguments within the study field of the second cycle of studies.
Making judgments	Possesses the ability to collect, analyse, evaluate, and present information, ideas, and concepts in the frames of the conducted scientific and research activities, using relevant data. Is able to make appropriate assessments taking into account personal, social, scientific and research, developmental, and ethical aspects. Is able to evaluate theoretical and practical issues, to formulate opinion and provide explanation of the causes that give rise to certain phenomena and to choose an appropriate solution.
Communication skills	Is able to establish contacts, develop arguments and discuss with both specialist and non-specialist audience on issues and about information, ideas, problems, tasks, and solutions when the criteria for decision making and the scope of the task are clearly defined. Takes over a divided, separate responsibility for issues arising from teamwork and related to collective results. Is capable to participate independently in specific, scientific, and interdisciplinary discussions while demonstrating a professional and comprehensive approach.
Learning skills	Takes initiative to identify the needs for acquiring further knowledge and learning with a high degree of autonomy.

1b. Specific qualification descriptors determining the learning outcomes for second cycle oneyear university academic studies comprising 60 ECTS, Modeling and simulation of plastic deformation technologies and processes (MSPDPT) study programme, pursuant to the Decree on the National Framework for Higher Education Qualifications

Knowledge and understanding	 Knowledge and understanding in scientific research fields and areas acquired in the second cycle and relate to: Knowledge of production engineering Production processes, especially the processes of metal forming, sheet metal forming, injection molding processes Usage of smart technologies and virtual engineering for modeling and simulation of production processes and die and mold design Advanced SW for modeling and simulation of production process for plastic deformation, injection molding 3D modeling, 3D digitalization, 3D printing, rapid prototyping State of the art techniques for concurrent engineering
Applying knowledge and understanding	Is capable of studying tasks that are subject to analysis as a complex, demonstrating elements of discernment, and can apply the knowledge and understanding in a manner indicating a professional approach to the job or the profession. Demonstrates competencies for identification, analysis, and problem solving in the relevant scientific areas studied in the second cycle of studies. Is capable of finding and supporting arguments within the field and areas of study.
Making judgments	Possesses the ability to collect, analyse, evaluate, and present information, ideas, and concepts using relevant data. Makes appropriate assessments taking into account personal, social, scientific and ethical aspects. Is able to evaluate theoretical and practical issues from the area of Modeling and simulation of plastic deformation technologies and processes, to provide well- supported explanations of the causes of certain phenomena, to explain the laws behind them, and to choose an appropriate solution.
Communication skills	Develops the ability to establish communication and to discuss with both specialist and non-specialist audience about information, ideas, problems, and solutions when the decision criteria and the scope of the task are clearly defined. Takes a divided, separate responsibility for collective results. Is capable to participate independently, taking a professional approach, in specific, scientific, and interdisciplinary discussions.
Learning skills	Undertakes initiative to identify the needs for acquiring further knowledge and learning with a high degree of autonomy, i.e. the student evaluates the need for continuous enhancement of their knowledge and skills.

2. Decision on adopting the study programmes by the Scientific and Educational Council of the Faculty (Faculty of Mechanical Engineering - Skopje), the Educational Council of the autonomous higher vocational school or the Scientific Council of the scientific institution.

The Decision is enclosed as Appendix 1 near at the end of the Elaborate.

3. Decision on adopting the study programme by the Rector's Board, the University Senate, or the Council of the scientific Institution

The Decision is attached as Appendix 2 near the end of the Elaborate.

4. Scientific and research area, field and domain of the study programme

Study programme:	Modeling and simulation of plastic deformation technologies and processes
Scientific and research area	2 Technical and technological sciences
Scientific and research field	214 Mechanical Engineering
Scientific and research branch	21403- Production engineering, technologies and systems 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 study programme (academic or vocational studies)

Modeling and simulation of plastic deformation technologies and processes study programme, organised by the Faculty of Mechanical Engineering - Skopje is an academic university study programme.

6. Degree of education (first or second cycle)

Modeling and simulation of plastic deformation technologies and processes study programme at the Faculty of Mechanical Engineering - Skopje is an academic university study programme of second cycle, organised as a year-long programme comprising 60 ECTS.

7. Objectives and rationale for the Modeling and simulation of plastic deformation technologies and processes study programme

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 Production engineering 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: advanced technologies, concurrent engineering, smart technologies used at modern companies for production engineering, tool and mold design, concurrent engineering.

Recognizing the basic profile competencies and acquired qualifications in production engineering this study program justifies expectations for analysis, exploration, state of the art technologies for modeling and simulation of the metal forming processes and injection molding process, tool and mold design in virtual environment, modeling and simulation for detecting and definition of working conditions; advanced 3D digitalization, 3D printing technologies, additive manufacturing.

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.

The abovementioned reasons give rise to the basic elements of the social justification and benefits from this study programme, as well as its sustainability in the future.

8. Duration of the study programme expressed in years and semesters

The Modeling and simulation of plastic deformation technologies and processes study programme is implemented in one year, two semesters, in accordance with the 4+1 model.

9. ECTS credits obtained by the student

By completion of one-year long university studies of second cycle in Modeling and simulation of plastic deformation technologies and processes study programme organised by the Faculty of Mechanical Engineering – Skopje, the student acquires 60 ECTS credits.

10. Manner of financing, and for private higher education and scientific institutions also a proof of secured a quality financial guarantee for the study programme

The expenses for conducting the graduate studies in **Modeling and simulation of plastic deformation technologies and processes** study programme will be covered by the students in the form of self-financing or co-financing. The sum, the manner of payment, as well as all the other requirements are regulated by the Rulebook on the Requirements, Criteria, and Regulations for Enrolment and Studying at the First and Second Cycle of University Studies of the Ss. Cyril and Methodius University in Skopje. In case of future participation in financing by the State, the amount of participation shall be taken into account in defining the amount for co-financing.

11. Enrollment requirements

The right to be enrolled in this study program belongs to candidates with completed university academic studies with acquired 240 ECTS, or candidates with completed undergraduate studies pursuant to the Law on Higher Education in force prior to implementation of ECTS system pursuant to the Bologna Declaration.

Enrollment of students in all the study programmes of the studies of second cycle shall be done pursuant to the provisions of the 'Call for Enrollment of Students at Studies of Second Cycle at the Ss. Cyril and Methodius University in Skopje'.

The Educational and Scientific Committee of the study programme shall be deciding on the fulfillment of the criteria of relatedness of the previous education with the study programme.

12. Information on continuation of education

After completing university studies of second cycle, **Modeling and simulation of plastic deformation technologies and processes** study programme at the Faculty of Mechanical Engineering – Skopje, the students can continue their education at third cycle of studies.

13. Determined ratio between compulsory and elective courses with a list of compulsory courses,

list of elective courses, and defined manner of choosing courses

Modeling and simulation of plastic deformation technologies and processes study programme of university academic studies of second cycle is organised as full-time one-year (two semesters) studies.

The study programme represents a continuation – enhancement of knowledge acquired in the first cycle of university academic studies of 4-year duration.

These one-year university studies of second cycle encompass a certain number of subject programmes (courses) which are expressed in a number of credits defined in the course programmes.

The structure of the **Modeling and simulation of plastic deformation technologies and processes** study programme, one-year academic university studies of second cycle, is presented in Table 1, and the ratio between the compulsory and elective courses are presented in Table 2.

Table 1.

No	Courses	ECTS	Winter semester	Summer semester
1.	Obligatory course	6	6	
2.	Obligatory course	6	6	
3.	Obligatory course	6	6	
4.	Obligatory course	6	6	
5.	Elective course	6	6	
6.	Elective course	6		6
7.	Elective course	6		6
	Master thesis	18		18
	Total number of credits	60	30	30

Total credit:	42 ECTS from courses + 18
	ECTS from master thesis = 60

TABLE 2 OBLIGATORY COURSES

	WINTER SEMESTER (IX)						
1.	ADVANCED FORMING PROCESSES AND TECHNOLOGIES	6					
2.	3D DIGITALIZATION PROCESSES IN MANUFACTURING	6					
3.	TECHNOLOGY OF RAPID PROTOTYPING – ADITIVE	6					
	MANUFACTURING						
4.	MODELING AND SIMULATION OF PLASTIC DEFORMATION	6					
	TECHNOLOGIES AND TOOLS						

TABLE 3 ELECTIVE COURSES

	WINTER AND SUMMER SEMESTER (IX & X)	ECTS
1.	GEOMETRIC TRANSFORMATIONS AND DEFORMATIONS IN 3D	6
2.	MATLAB PROGRAMMING	6
3.	POLYMER PROCESSING	6
4.	NANOTECHNOLOGY PROCESSING	6
5.	MODELING AND SIMULATION OF INJECTION MOLDING	6
	PROCESSES	0
6.	VIRTUAL DESIGN OF INJECTION MOLDING TOOLS	6
7.	VIRTUAL DESIGN OF METALFORMING TOOLS	6

8.	MODELING AND SIMULATION OF SHEET METAL FORMING PROCESSES	6
9.	AUGMENTED REALITY & 3D VISUALIZATION	6
10.	SENSORS & ACCURATORS (MECHATRONIC SYSTEM IN FORMING TOOLS)	6
11.	DESIGN OF PLASTIC PARTS	6
12.	VIRTUAL MANUFACTURING	6
12	NUMERICALLY CONTROLLED MACHINES AND CNC	6
13.	PROGRAMMING	0
14.	COMPUTER INTEGRATED MANUFACTURING	6
15.	INTELLIGENT PROCESSES AND SMART TECHNOLOGIES	6
16.	BUSSINESS INFORMATION SYSTEMS	6
17.	INNOVATION MANAGEMENT	6
18.	MANAGEMENT OF TECHNOLOGY	6
19.	DESIGN OF QUALITY MANAGEMENT SYSTEMS	6
20.	FEASIBILITY STUDY DESIGN	6
21.	CAD/CAM SYSTEMS	6

MASTER THESIS

	SUMMER SEMESTER - X	EKTC
1.	MASTER THESIS	18

Table 4

No.	Study program	Years/ Number of credits ECTS	Total ECTS	Number/ percent of obligatory courses	Number/ elective course
1	MSPDTP	1 year/ 60 ECTS	60 ECTS / 100%	42 ECTS / 70%	18 ECTS / 30%

Regarding the elective courses, the student is allowed to choose courses offered by other accredited university studies which are 6 ECTS worth.

Students are allowed to attend and take examination for up to two courses offered by one same professor.

Pursuant to the Law on Higher Education, the programme is delivered in Macedonian language. However, compliant to the provision of Article 139 Paragraph 10 of the Law on Higher Education certain courses can be delivered in English.

14. Information on the premises foreseen for realization of the study programme

The graduate studies are organised as full-time studies with instruction.

The Faculty of Mechanical Engineering has on disposal sufficient special capacity for realisation of the educational process on the first, second, and third cycle of studies, noted in the Higher Education Institution Map.

The practice part of the instruction is mainly carried out in the laboratories of the Institute of Production Engineering and Management. The Industrial Engineering and Management laboratory is the venue for most of the practice work, but, when needed, other laboratories own by the Faculty of Mechanical Engineering and stated in the Higher Education Institution Map can serve as a location for practising.

15. List of equipment foreseen for implementation of the study programme

The Faculty of Mechanical Engineering – Skopje has got the following pieces of equipment at its disposal for instruction:

- 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);
- System for testing turbopumps, model turbines, and pipeline armature (the system is composed of three-chamber reservoir, electric motor driven pump, vacuum pump, compressor, compressed air reservoir);
- Machines from the field of pneumatics, electro-pneumatics, hydraulics, electro-hydraulics, proportional hydraulics and application of computers in programmable memory control;
- Measuring Amplifier instrument for dynamical measurements HBM KWS/6A-5;
- Measuring Amplifier instrument for dynamical measurements HBM type KWS 673.D4. ;
- Multi-channel measurement instrument HBM type 3835A (6 x UM3301A);
- Instrumentation Data Acquisition Tape Recorder HP 3964A and HP 3968A;
- Two-channel Oscilloscope HBM type H2B.13A;
- Spectrum Analyzer HP 3582A;
- Six-channel electronic writer RIKADENKI type R65 with RS232 interface;
- Two-coordinate electronic writer HP type 7015B;
- Set for application of measure gauges HBM- DAK2;
- Measuring amplifier for no contact measure of torque HBM-BLM;
- Five-channel measure amplifier- acquisition system DMC- SHARP;
- PC computer with built-in A/D (D/A) cards NATIONAL INSTRUMENTS type AT -MIO-16;
- Interfaces for online signal processing and equipment control;
- XS Plotter ROLLAND- DXS.880;
- Six-channel measuring amplifier instrument for static and quasi static measurements HBM-UPM60;
- Junction box HBM-BT21 93;
- Strain gauges for tensometric testing (HBM и PHILIPS) of different types;
- Inductive transducers for displacement HBM type W20 (1), W50 (2) and W100 (4);
- Inductive transducer for acceleration HBM type B12 (8);
- Transmission system transducer registering pressure force;
- Fluid pressure transducer HBM type P11/10; P1/200;
- Force transducers HBM type 36X2/1t, 312/50 и 312/200;
- Press for inflicting force MF1;
- Transducers (of different types) for temperature measurement;
- Tensometric transducers for measuring torque;
- Collector rings and brushes HBM;
- Device for measuring the thickness of metal walls (metal sheets);
- Apparatuses and systems for determining physical and chemical characteristics of fuels, lubricantion olis, and water;

- Device for examination of surface cracks;
- Equipment for dimensional measurement, control of length and angular characteristics, quality of surface, mass and other controls;
- Devices for examination of harmful substances in exhaust gasses;
- Etalon gasses for comparison and control of gas analyzers;
- Tachometer (RPM gauge) ISKRA;
- Weighing scales with weight range 50 to 10,000 kg.;
- Aggregate HONDA 800 for charging the measure instruments when dynamic testing of vehicles are performed;
- Computers (DIGITAL, XP, PC), used as servers, graphics and autonomous workstations;
- Instruments and devices for vibration measurements (vibration analyser, vibrometer, calibration vibrator etc.)
- Devices for measurement of noise (noise analyser, filter, microphones and other aids)
- Testing stands for protective equipment and shelters (shock wave simulators, flow rate measurements with micromanometers);
- 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;
- Instructional cooling aggregate "Graco" with measurement and regulation devices for thermoenergetic balancing
- Cooling calorimetric aggregates as teaching resourse and for balancing;
- Forced draught cooling tower with water system, lamellate heat exchanger for water cooling for the air conditioning chamber and thermal testing;
- Heat pump model plant;
- "Vaporax" steam boiler for fast steam production and burners;
- Device for chemical preparation of water, supply reservoir, etc.;
- Instruments for exhaust gases analysis;
- Motor octane number determining (IT9-2M) using the motor method;
- Professional Software ADAMS, CAD, FLUENT, LAB WINDOWS Ideas, Nisa, Algor, Delphi, Matlab, CATIA, SOLID, SIEMENS (NX, Technomatix, Teamcenter, ...), Solidworks, Autodesk Inventor, ArtCAM, X3 Medical V6, RapidWorks and other;
- Hand-held devices for water quality measuring Eureka Environmental Manta Multiprobe Logger3.0, 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 measuring equipment Laboratory Conductivity Meter, Laboratory Oxygen Meter;
- Set for soil testing;
- GPS Global Positioning Unit, One Frequency R3 GPS system (base+rover) with postprocessing software Trimble Recon ;
- Zeta-Meter System 3.0+ with Unitron FSB 4X Microscope;
- M-CAM 40 CNC wood processing machine;
- XSensors pressure mapping system;
- NextEngine 3D Scanner;
- Styrocut thermo cutter.

- Control block, Mitutoyo, type: 515 500, No. 009400
- Control block, Mitutoyo, type: 515 742, No. 022036
- Control ring Ø 10 mm, Mitutoyo, Tip: 177 -126, No. 881078
- Control ring Ø 14 mm, Einst, Kp-01
- Control stick L= 25 mm, Mitutoyo, No. 167 101
- Control stick L= 50 mm, Mitutoyo, No.167 -102
- Control stick L= 75 mm, Mitutoyo, No. 167 103
- Control stick L = 100 mm, Mitutoyo, No. 167 104
- Control stick L =125 mm, Mitutoyo, No.167
 105
- Control stick L = 150 mm, Mitutoyo, No. 167 106
- Control ring Ø 50 mm, Einst, Kp-02
- Control glass for flatness testing 12 mm, Mitutoyo, No. 157 – 101
- Set of plane-parallel control glasses for inspection of parallelism (4 pieces) Mitutoyo, No. 157 - 903
- Set of plane-parallel bordering scales (10 pieces), Mitutoyo, Code No: 516 107, Serial No. 219652
- Universal length measuring machine, Carl Zeiss Jena, No. 2492
- Universal length measuring machine, Carl Zeiss Jena, No. 1591
- Universal length measuring machine, SIP, Type: MUL-300, No. 556
- Universal measuring microscope, Carl Zeiss Jena, No. 10344
- Universal measuring microscope, UIM-21, No. 610978
- Granite measuring plate, Hommel dura, No. 11043

Measuring range: 0 - 300 mm, Accuracy: 2.5 μm Measuring range: 0 - 600 mm, Accuracy: 3.5 μm

Nominal diameter: 10 mm, Cylindricity: 1 µm, Nominal diameter: 14 mm, Cylindricity: 1 µm Nominal length: 25 mm, Tolerance: (1+L/50), L in mm Nominal length: 50 mm, Tolerance: (1+L/50), L in mm Nominal length: 75 mm, Tolerance: (1+L/50), L in mm Nominal length: 100 mm, Tolerance: (1+L/50), L in mm Nominal length: 125 mm, Tolerance: (1+L/50), L in mm Nominal length: 150 mm, Tolerance: (1+L/50), L in mm

Nominal diameter: 50 mm, Cylindricity: 1 μm, Thickness: 12 mm Flatness: 0.1 μm Parallelism: 0.2 μm Thickness: 12,00; 12,12; 12,25; 12,37, Flatness: 0.1 μm Parallelism: 0.2 μm Measuring range: 2,5-25,0 mm, Class I (in accordance with DIN 863)

Measuring range: to 600 mm, Resolution: 1 μ m Measuring range: to 600 mm, Resolution: 1 μ m Measuring range: to 300 mm, Resolution: 0.5 μ m With possibility of coil profile measuring Measuring range: 25 x 25 (50 x 150) mm Resolution: 0.01 mm Measuring range:: 100 x 250 mm Resolution: 0.01 mm Dimensions: 1000x630x150 mm, Accuracy class: 1 Mandatory Components of the Study Programmes of the First, Second, and Third Cycle ("Official Gazette of the Republic of Macedonia" No. 25/2011) and the Rulebook on Changes and Amendments of the Rulebook on the Mandatory Components of the Study Programmes of the First, Second, and Third Cycle ("Official Gazette of the Republic of Macedonia" No. 154/2011)

Add	dd. 3 Course program for the second level (second cycle - postgraduate) of studies							
1.	Course title	A	Advanced forming processes	and technologies				
2.	Code	2	2MSPDTP01					
3.	Study group(s)	Ν	Iodeling and Simulation o	f Plastic Deformation				
		Т	Technologies and Processes					
4.	The organizer of the study program	~~	"Ss. Cvril and Methodius" University in Skopie,					
	(unit, institute, department)	F	Faculty of Mechanical Engineering Skopje					
5.	Level (first, second, third degree)	S	Second					
6.	Academic year / semester	Ι	/winter 7. ECTS of	credits 6				
8.	Professor	F	Prof. dr Jasmina Chaloska					
9.	Prerequisites for enrolling the cours	se N	Vone					
11.	 10. Course objectives (competences): This course will prepare students for industrial careers within a reinvigorated global manufacturing sector. Students will develop specialist skills in areas such as: advanced production techniques, materials and smart production technology, as well as technology management. At the end of the course students will have a greater understanding of the methods, tools and techniques relating to advance forming technology and systems. They will be educated in the fundamentals of the advanced forming processes of materials and its expert systems that will help them in gaining knowledge of advanced forming processes and manufacturing systems. 11. Course content: Introduction to advanced metal forming, materials and process techniques and their applications. Traditional and advanced metal forming technologies and materials requirements. Elastic-plastic and viscoplastic deformation of metals and their respective application domains. Mechanics of sheet metal forming; formability of sheet metals. Test methods to obtain material data for forming simulations. FE modeling techniques, process simulation, boundary conditions, friction, heat transfer, etc. 							
12.	Study methods: Interactive lectures, auditory and/o project assignments, self running as	r labora signmer	ntory practice, self running a	ind/or team work on				
13.	Total hours		6 ECTS x 30 = 180 hours					
14.	Hours allocation per activity:		30+30+30+30+60=180 hou	rs				
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2)	30 hours				
		15.2.	Lab (student work)	30 hours				
16.	Project Work/Assignments	16.1.	Project assignments	30 hours				
		16.2.	Individual assignments	30 hours				
		16.3.	5.3. Self-study 60					
17.	Points/Marks:	1	1					

	17.1.	I	Exams	5			70 %	
	17.2.	I	Projec	ts			20 %	
	17.3.	I	Attend	lance			10 %	
18.	Gradir	ng sca	le		under 50 %	5 (five) (F)		
		-			51-64 %		6 (six) (D)	
					65-74 %	7 (seven) (C)		
					75-84 %		8 (eight) (B-)	
					85-94 %	9	$\frac{1}{2}$ (nine) (A-/B+)	
10	Drorog	nicito	a for t	aking the final exam	95-100 % Sominor work doliv	and and approve	10 (ten) (A/A+)	
19.	Longu		5 101 1		English	ered and approve	24	
20.	Caura	age	notion		Eligiisii Studant quastiannai			
21.	Course		uation	1	Student questionnal	re		
22.		JOKS		1				
	22.1	Instr	uctior	n materials	TP1.1	D 11' 1	**	
		No.		Author	Title	Publisher	Year	
		1.	Sure	ender Kumar	Technology of	PHI Learning	2008	
					Metal Forming	Pvt. Ltd.		
					Processes	~ .		
		2.	Ping	g Hu, Ning Ma, Li-	Theories,	Springer-	2013	
			ZHOI	ng Liu, Yi-guo Zhu	Methods and	London		
					Technology of	London		
					Sheet Metal Cold			
					and Hot Forming:			
					Analysis,			
					Simulation and			
					Engineering			
		3.	M. 5	Spittel, T. Spittel	Metal Forming	Springer-	2009	
			(aut	h.)	Data of Ferrous	Verlag Berlin		
					Alloys -	neidelberg		
					behavior			
					Group VIII			
					Advanced			
					Materials and			
					Technologies			
	22.2	Supp	oleme	ntal Instruction Materia	ls			
		No.	Aut	hor	Title	Publisher	Year	
		1.	Lin	J, Balint D, Pietrzyk M	Microstructural	Woodhead	2012	
					evolution in metal	Publishing,		
					torming	ISBN 978-0-		
					processes: Modelling and	85/09-0/4-4		
					Applications			
					Applications			

Add	1.3	Course program for t	he second level (second cycle - postgraduate) of studies
1.	Course title		3D DIGITALIZATION PROCESSES IN MANUFACTURING

2.	Code		2MSP	DTP02						
3.	Study grou	p(s)	Modeli	ng and Simu	latio	n of	Plastic	Def	formation	
			Techno	logies and Proce	sses					
4.	The organi	zer of the study	"Ss. C	Cvril and Metho	odius	" Uni	versitv in	ı Sk	opie.	
	program (u	nit, institute,	Facult	y of Mechanical	Eng	ineerin	g - Skopj	e	15 /	
5.	Level (first	, second, third degree)	Second							
6.	Academic	year / semester	I/winte	r	7.	ECTS	credits		6	
8.	Professor		Prof. d	lr Atanas Kocho	V					
9.	Prerequisit	es for enrolling the	None							
10.	Course obj	ectives (competences):								
	The course	objective is complete sur	mmary f	for understandin	g the	recons	struction	of 3I) scenes	
	through th	e use of 3D scanning a	and poi	nt clouds. The	cou	rse dea	als and d	lescr	ibes the	
	theoretical	background, and compar	es the p	erformance of th	ne pr	oposed	approace	nes to	o that of	
	current stat	te-of-the- art techniques.	his cou	irse is highly use	etul t	those	e unfamili	ar w	1 Inter	
	scanner da	ta gathering including d	iiierent	available techn	iques	s and e	equipmen	t and	a would	
	serve as a g	good first choice about the	ese techi	lologies and pro	cessi	ng app	lications			
11.	Course con	itent:								
	• 3D techno	blogies, 3D scanning and	printing	D 1 1 1		1.0	• , 1	•,		
	Reviews t	techniques for the acquisit	tion of 3	D point cloud da	ata ai	nd for j	point qual	ity		
	Explained	ssmeni the fundamental concents	for ovtr	acting factures f	rom '	2D ime	a arry and	2D +	agint	
	 Explains (clour) 	d data		acting realures in		2D III <i>c</i>	igery and	JU	Joint	
	Proposes	an original approach to ke	ev point	-based point clou	ıd re	gistrati	on			
	 Smart 3D 	digitalization technologie	es	oused point erec		51541441	011			
	 Discusses 	the enrichment of 3D point	int cloud	ls by additional i	infor	mation	acquired	with	na	
	thermal ca	amera, and describes a ne	w metho	od for thermal 3I) ma	pping	1			
	• Presents a	novel framework for 3D	scene a	nalysis, addressi	ng no	eighbo	rhood sele	ectio	n,	
	feature ex	traction, feature selection	, and cla	assification						
	• Covers ea	ch aspect of a typical end	-to-end	processing work	flow	, from	raw 3D p	oint	cloud	
	data to ser	mantic objects in the scen	e .							
	• Applicatio	on of 3D scanning in diffe	erent sci	entific areas and	prac	tical is	sues			
12.	Study meth	nods:								
	Interactive	lectures, auditory and/or	laborat	ory practice, sel	lf-rur	nning a	and/or tea	um v	work on	
	project assi	ignments, self-running ass	signmen	ts						
13.	Total hours	5		6 ECTS x 30 =	= 180) hours				
14.	Hours allo	cation per activity:		30+30+30+30-	+60=	180 hc	ours			
15.	Lectures/La	ab	15.1.	Lectures (15 w	reeks	x 2)			30 hours	
		1 /	15.2.	Lab (student w	vork)				30 hours	
16.	Project Wo	ork/Assignments	16.1.	Project assignr	nent	S			30 hours	
			16.2.	Individual assi	gnm	ents			30 hours	
					0					
			16.3.	Self-study					60 hours	
17.	Points/Mar	ks:	I	1						
	17.1.	Exams 60 %								
	17.2.	Projects							30 %	
	17.3	Attendance							10 %	
10	Grading co			unda	r 50	0/2		5	(five)(E)	
10.	Grauning SC	aic		uiide 51	<u>-6</u> 4	/u %		<u>ح</u>	$(\operatorname{nve})(\Gamma)$	
					5_74	/0 %		7 (0	(SIA)(D) even)(C)	
I	l		L	0.	,-/ +	/ U		1 (5	cven(C)	

				75-84 %	<i>⁄</i> 0	8 (eight) (B-)	
				85-94 %	<u>6</u> 9	(nine) (A-/B+)	
				95-100 % 10 (ten) (A/A			
19.	Prerequ	isites	for taking the final	Seminar work delivered and	approved		
20.	Langua	lge		English			
21.	Course	evalua	ation	Student questionnaire			
22.	Textbo	oks					
	22.1	Instr	uction materials				
		No.	Author	Title	Publisher	Year	
		1.	Samuel N. Bernier and Bertier Luyt	Design for 3D Printing: Scanning, Creating, Editing, Remixing, and Making in Three Dimensions	Maker Media, Inc; 1 edition	October 1, 2015	
		2.	Martin Weinmann	Reconstruction and Analysis of 3D Scenes: From Irregularly Distributed 3D Points to Object Classes	Springer; 1st ed. 2016 edition	March 17, 2016	
		3.	Victoria Zukas (Author), Jonas A. Zukas (Author)	An Introduction to 3D Printing	First Edition Design	May 6, 2015	
	22.2	Supp	elemental Instruction M	laterials			
		No.	Author	Title	Publisher	Year	
		1.	Brian R. Kent	3D Scientific Visualization with Blender	Morgan & Claypool Publisher s	January 7, 2016	

Add	1. 3	Course program for	the second	level	(second	l cyc	le - po	stgradua	te) of st	udies
1.	Course titl	e	TECHNOLOGY OF RAPID PROTOTYPING –							
			ADITIVE	MAN	UFAC	TUR	ING			
2.	Code	2MSPDT	P03							
3.	Study group(s)		Modeling	and	Simul	ation	n of	Plastic	Deform	nation
		Technologi	ies and	Proces	sses					
4.	The organ	izer of the study	"Ss. Cyri	1 and	Metho	odius	" Uni	versity in	Skopje	e,
	program (u	init, institute,	Faculty of	Mech	anical	Engi	neering	g - Skopje		
5.	Level (firs	t, second, third degree)	Second							
6.	Academic	year / semester	I/winter			7.	ECTS	5 credits		6
8.	Professor		Prof. dr Atanas Kochov							
9.	Prerequisit	tes for enrolling the	None							

10	Course objectives (compatences):									
10.		obje	curves (competences).	• 1 1	1 1 / 1	1 4	• 1• 1 4			
	Objecti	ves	of the course are acquin	ing knowle	edge about advance	d smart spec	cialized systems			
	for deve	elopi	ing rapid prototypes, teo	chniques, th	neir application in the	ne processes	of development			
	of new products and production systems, application of integrated computer aided systems									
	(CAx) for designing and modeling of products and processes. Concept of Additive									
	manufa	cturi	ng, rapid prototyping	technolog	vies. Smart Prototy	vning Techr	ologies. Rapid			
	tooling processes mold design and methodologies for producing rapid tools									
	tooning	proc	coscos, mora design and	memodolo	gies for producing i	upia 10015.				
11.	Course	cont	tent:							
	• T	he r	nechanisms behind all r	naior 3D pi	rinting technologies					
	• T	The h	enefits and limitations	of each tech	hnology					
	• I • T		view mealing to all for to							
	• 1	Jecis	sion making tools for teo	ennology se	election					
	• \$	mar	t prototyping technolog	ies						
	• E	Expe	rt systems in RP, RT							
	• A	Actio	nable design advice and	l guidelines	5					
	• I	ndus	try case studies from w	orld-leadin	g brands					
	Additio	nally	y, the course will cove	r: Technol	ogies for creating 1	apid prototy	pes; techniques:			
	Stereo 1	itho	graphy - SLA: Laminat	ed Object I	Manufacturing - LO	M: Selective	e Laser Sintering			
	- SLS:	Fuse	d Deposition Modeling	- FDM: S	olid Ground Curing	SGC: 3-D	Ink-Jet Printing:			
	applicat	tion	of rapid prototype to	echniques	further developm	ent The be	enefits of smart			
	technol	ngie	s of RP RT in new	digital co	manies for Indu	stry 40 A	dvances in new			
	approac	hec	for 21_{st} century compa	nies	mpanies for maa	Suly 4.0. A				
	approac	ines.	for 21-st century compe	unes.						
12.	Study n	nethe	ods:							
	Interact	ive	lectures, auditory and/c	or laborator	y practice, self-run	ning and/or	team work on			
	project	assig	gnments, self-running as	ssignments						
13.	Total h	ours			6 ECTS x 30 = 1	80 hours				
14	Hours a	lloc	ation per activity.		30+30+30+30+6	0=180 hours	1			
15	Lecture	s/La	h	15.1	Lectures (15 wee	$(ks \times 2)$	30 hours			
10.	2000000		•	15.2	Lab (student wor	·k)	30 hours			
16	Project	Wo	rk/Assignments	16.1	Project assignme	ents	30 hours			
10.	110jeet		IK 7 (SSIgninents	10.11	i roject assignine	1113	50 110015			
				16.2.	Individual assign	iments	30 hours			
				16.3.	Self-study		60 hours			
17	Deinte/N	1								
1/.	Points/I	viark	.S:				<u> </u>			
	17.1.		Exams				60 %			
	17.2.		Projects				30 %			
	17.3		Attendance				10 %			
10	Gradin		10			1	5 (f) (E)			
18.	Grading	g sca	lle		under 30 %	/0	$\frac{3(\text{live})(\text{F})}{2}$			
					51-64 %	0	$6(s_{1X})(D)$			
					65-74 %	0	7 (seven) (C)			
					75-84 %	0	8 (eight) (B-)			
					85-94 %	0	9 (nine) (A-/B+)			
					95-100 %	<u></u>	$10 \text{ (ten)} (\overline{A/A+})$			
19	Prereou	isite	s for taking the final ex	am	Seminar work de	livered and	approved			
20	Lorenza	~~	5 for taking the final of	will	English		upproved			
20.	Langua	ge			English					
21.	Course	eval	uation		Student question	naire				
22.	Textboo	oks								
	22.1	Inc	truction materials							
	<i>44</i> .1				T:41.	D-11' 1	V			
		INO	. Author		1 itie	Publisher	y ear			

	1.	Todd Grimm	Rapid Prototyping		2004
	2.	Frank W. Liou	Rapid Prototyping And Engineering Applications: A Toolbox for Prototype	CRC Pr I Llc	2007
	3.	Steven Ashley	"From CAD Art to Rapid Metal Tools," Mechanical Engineering	Penn State Learning	March 1997
	4.	Michelle Griffith and John S. Lamancusa	"Rapid Prototyping Technologies," Rapid Prototyping	Springer	April 2009
22.2	Supp	plemental Instruction N	Aaterials		
	No.	Author	Title	Publisher	Year
	1.	Ali K. Kamrani, Emad Abouel Nasr	Engineering Design and Rapid Prototyping	Springer- Verlag	June 2009
	2.	Ben Redwood, Filemon Schöffer & Brian Garret	The 3D Printing Handbook: Technologies, design and applications	3D Hubs	November 28, 2017

Add	.3 (cond level (secon	d cyc	le - postgraduate)	of			
1.	Course title		Modeling and Simulation of Plastic Deformation					
			Technologies and	1 Too	ols			
2.	Code		2MSPDTP04					
3.	Study group(s)	Modeling and S	imul	ation of Plastic De	eformation		
			Technologies and Processes					
4.	The organize	"Ss. Cyril and M	letho	dius" University in				
	(unit, institut	Skopje, Faculty	of M	echanical Engineer	ing			
5.	Level (first, s	Second						
6.	Academic ye	ar / semester	I/winter	7.	ECTS credits	6		
8.	Professor		Prof. dr Jasmina	ı Cha	ıloska			
9.	Prerequisites	for enrolling the course	None					
10.	Course objec	tives (competences):						
	Understand th	ne different models of pla	astic and elastic-	plasti	ic behaviour of e	ngineering		
	materials, stra	tegies of the numerical sim	ulation of plastic	defo	rmation technologi	es. design,		
	calculation and	d modeling of tools.						
	Design and de	velop new products, by usin	ng smart approach	ies, te	echnologies and too	ols, as well		
	as the optimiz	ation of other already develo	oped, based on the	e sele	ction of materials f	or specific		
	applications.	Simulation of plastic defo	rmation technolo	gies	and tools by usir	ıg modern		
	software (SO	LIDWORKS, SOLIDWOR	KS Plastics, QFor	m). S	Students will be ab	le to solve		
	the practical p	roblems and challenges of n	nodern production	i, in t	he design of techno	ologies and		

11.	 Modeling and simulation of forming processes. Introduction to smart technologies for designing and modelling the technologies for plastic deformation. Methods for solving plastic deformation processes. Plastic and elastoplastic stress-strain relationship anisotropy and plastic deformation of metallic products during their cold working, modeling of the plastic deformation at high temperatures of metallic materials, fundamental description of metal forming technologies, overview of presses and tool design, theories of failure in the study of plastic flow of metals, metal forming equipment plastic ratio, grid circle analysis, forming limit diagrams, commercial tests. Fundamentals of plasticity, including plastic instability. The true stress - true strain curve, strength co-efficient k and work hardening coefficient n. Modeling and Simulation of forming tools Tools, types of tools, characteristics, design and calculation. Simulation plastic deformation technologies and tools by using software for modeling and simulation plastic deformation technologies and tools (QForm, SOLIDWORKS,SOLIDWORKS Plastics). The intelligent systems for advanced approaches and expert systems for designing the plastic deformation processes for creating competitive industry. 							
12.	Study	metho	ods: Interactive lecture	es, au	ditor	ry and/or laboratory	practice, self ru	nning and/or
13	team Total	work hours	on project assignmen	ts, sel	t rur	1000000000000000000000000000000000000	10 hours	
14.	Hours		ation per activity:			0 EC1S x 30 = 180 nours 30+30+30+30+60=180 hours		
15.	Lectures/Lab			1.	5.1.	Lectures (15 weeks x 2) 30		
				1.	5.2.	Lab (student work	x)	30 hours
16.	Projec	t Wor	k/Assignments	16	6.1.	Project assignment	its	30 hours
				10	6.2.	Individual assignr	nents	30 hours
				16	6.3.	Self-study		60 hours
17.	Points	/Mark	s:			·		
	17.1.	E	Exams					70 %
	17.2.	Р	rojects					20 %
	17.3.	A	Attendance					10 %
18.	Gradi	ng sca	le			under 50 %		5 (five) (F)
						51-64 %		$6(\overline{\text{six}})(D)$
						65-74 %		7 (seven) (C)
						75-84 %		8 (eight) (B-)
						85-94 %	9 (1	$\frac{\text{nine}(A-/B+)}{(A-/B+)}$
10	Duanaa	nicitor	for toling the final		6	% 95-100 %		(ten)(A/A+)
19.	I ar ar		s for taking the final (Jain	<u>- 1</u> -	English	and approve	
20.	Langu	age						
21.	Cours	e evalu	uation		2	student questionnaii	re	
22.	Textbo	ooks						
	22.1	Instru	uction materials					
		No.	Author			Title	Publisher	Year
		1.	Marc André Meyers	5,	N	Aechanical	Cambridg	2008
			Krishan Kumar Cha	iwla	E	Sehavior of	e L'himingen ital	
						viaterials	Dress	
							11055	

		2.	Totten, G.E., Xie, L. and Funatani, K.	Modeling and Simulation for Material Selection and Mechanical Design	CRC Press	2003
		3.	R. E. Goforth, K. T. Hartwig, L. R. Cornwell	Investigations and Applications of Severe Plastic Deformation	Springer Netherlands	2000
2	22.2	Supp	lemental Instruction Materia	ls		
		No.	Author	Title	Publisher	Year
		1.	Hafner, J.	Materials simulations using VASP—a quantum perspective to materials science	Computer physics communicati ons	2007

ty in					
ring -					
Skopje					
6					
The main aim of this course is to give the basic knowledge to the students on various					
technologies commonly used polymer processing. The post-graduated students will be able to					
uct for the					
e polymer					
cessing					
materials					
. reaction					
processing					
0					
, coloring,					
. 0,					
work on					

13.	Total hours				6 ECTS x 30 = 180 hours			
14.	Hours a	alloca	tion per activity:		30+30	+30+30+60=	180 hours	
15.	Lecture	es/Lab)	15.1	. Lectur	res (15 weeks	x 2)	30 hours
				15.2	. Lab (s	student work)		30 hours
16.	Project	Wor	k/Assignments	16.1	. Projec	t assignments	5	30 hours
				16.2	. Indivi	dual assignme	ents	30 hours
				16.3	. Self-s	tudy		60 hours
17.	Points/	Marks	5:					
	17.1.]	Exams					60 %
	17.2.]	Projects					30 %
	17.3. Attendance							10 %
18.	Grading scale					under 50 °	%	5 (five) (F)
				Ī		51-64 9	%	6 (six) (D)
						65-74 9	2⁄0	7 (seven) (C)
						75-84 9	2⁄0	8 (eight) (B-)
						85-94 9	%	9 (nine) (A-/B+)
						95-100 9	%	10 (ten) (A/A+)
19.	Prerequisites for taking the final exam			m	Seminar work delivered and approved			
20.	Language				English			
21.	Course evaluation				Student	questionnaire		
22.	Textbooks							
	22.1	Inst	ruction materials					
		No.	Author		Т	Title	Publisher	Year
		1	D.H. Morton-Iones		Polymer		Iones	1989
		1.	Chapman and Hall 198	89.	Processi	ng	Chapm	1909
				,	110000000	-6	an and	
							Hall	
		2.	Anita Grozdanov		Internal	Book	FTM	2013
		2						
		5.						
		G		1				
	22.2	Sup	plemental Instruction Ma	aterial	S			
		No.	Author		Title		Publisher	Year

Add	Add. 3 Course program for the second level (second cycle - postgraduate) of studies							
1.	Course title	2		Ν	anotechnology Pr	ocessing		
2.	Code			21	MSPDTP06			
3.	Study grou	p(s)		S	EE			
4.	The organi	zer of the study program		"	Ss. Cyril and M	1ethodius	" Universit	ity in
	(unit, instit	tute, department)		Skopje, Faculty of Mechanical Engineering -				
				Skopje				
5.	Level (first	, second, third degree)		Second				
6.	Academic	year / semester		II/summer 7. ECTS credits 6				
8.	Professor	•		P	rof. dr Anita Grozo	lanov		
9.	Prerequisit	es for enrolling the course		Ν	one			
10.	Course obj	ectives (competences):						
	The aim of	f the course is to give a ba	asic k	cno	owledge of a mod	ern resear	ch-grade cl	eanroom,
	different m	nethods of semiconductor	nano	fał	prication and proc	essing of	nanostruct	ures. The
	participants	s of the course will hav	ve po	oss	sibility for analyz	zing and	compared	different
	technologie	es applied in processing of	nanos	str	uctures.			
11	Course cor	atont.						
11.	This course provide advanced and higher-level knowledge for the main technologies used for							
	the proces	sing of nanostrucutres. The	e nosi	t-9	raduated students	will be al	ble to select	t the most-
	efficient te	chnology processing of na	anoma	ate	rials.			i une most
	The main	technologies include in	the	pro	ogram will be: I	Lithograp	ny, Direct	patterning
	(electron-beam, focused ion beam), scanning probes, nanoimprint, Microcontact printing.							
12	Study meth	ods.						
12.	Interactive lectures auditory and/or laboratory practice selfrunning and/or team work on							
	nroject assi	ionments selfrunning assio	nmen	an 1ts	ny praetiee, serie	anning an	d/or team	WOIK OII
10			,			0.1		
13.	Total hours	<u>S</u>			6 ECTS x 30 = 18	30 hours		
14.	Hours allo	cation per activity:	1 7 1	30+30+30+30+60=180 hours				
15.	Lectures/La	ab	15.1	1.Lectures (15 weeks x 2) 30 hours2.Let ($(1, 1)$)				
16	Ducie of W		15.2	2.	Lab (student work	<u>()</u>		30 hours
10.	Project wo	ork/Assignments	10.1	•	Project assignment	its		30 nours
			16.2	2.	Individual assign	nents		30 hours
			16.3	5.	Self-study			60 hours
17.	Points/Mar	ks:	l					
- / ·	17.1.	Exams						60 %
	17.2	Projects						30 %
	17.2.	Attendence						10.0/
10	17.3.	Attendance	<u> </u>		1			10 %
18.	Grading sc	ale	-		under 50)%		5 (five) (F)
			-		51-64	1%		$6(s_{1x})(D)$
			-		65-74	+ % 1.0/	7 ($\frac{\text{seven}}{(C)}$
					/5-84	+ %	8 (eight) (B-)
			F		85-94	+ %0) 0/	<u>9 (nin</u>	(A - / B +)
10	Duonoi- i	an fan talzin a tler fin -1	_	C	<u>95-100</u>	J %0	10 (te	en) (A/A+)
19.	Prerequisit	es for taking the final exam	1	Seminar work delivered and approved				
20.	Language			E	nglish			
21.	Course eva	luation		S	tudent questionnai	re		_

22.	Textbo	oks								
	22.1	Instr	uction materials							
		No.	Author	Title	Publisher	Year				
		1.	Cui Zhang	Nanofabrication : Principles, Capabilities and Limits	Springer USA	2008				
		2.	Anita Grozdanov	Internal Book	FTM	2018				
	22.2	Supr	Inmental Instruction Materia	10						
	22.2	Supp		.1S T:41	D-1.1.1.	V				
		INO.	Aumor	11110	Publisher	rear				

Add	I. 3 Course program for	the second level (second	l cyc	cle - postgraduate) of studies	
1.	Course title	MODELING AND SIMULATION OF INJECTION				
		MOLDING PROCESS	ES			
2.	Code	2MSPDTP07				
3.	Study group(s)	Modeling and Simu	latio	on of Plastic I	Deformation	
		Technologies and Processes				
4.	The organizer of the study	"Ss. Cyril and Methodius" University in Skopje,				
	program (unit, institute,	Faculty of Mechanical	Engi	neering - Skopje		
5.	Level (first, second, third degree)	Second				
6.	Academic year / semester	II/summer	7.	ECTS credits	6	
8.	Professor	Prof. dr Atanas Kochov	r			
9.	Prerequisites for enrolling the	None				
10.	Course objectives (competences):					
	Introduction to the characteristics of	of polymers, molds and to	ols f	or plastic injection	processes,	
	the process of injection molding(I	M), design of smart tech	nolc	gies for IM, comp	outer aided	
	techniques for injection molding	processes, the process	of	digitalization and	automatic	
	generating of tools/molds and expe	rt systems for injection m	oldi	ng of polymers		

11.	Course Charact molds, systems projecti numeric masses, simulat Study n Interact	conte ceristic classi s for n on m cal pla tecl ion of nethoo ive le	nt: cs of polymers, techno fication of tools, datab numerical controlled ma nachines, automatic ge astic tool tools analysis hno-economic analysis processes ds: cctures, auditory and/or	logies of pr ases, standa achines, inje enerating o s, optimizat is, compute r laboratory	oducing and tr rd elements, ejo ction ignition to f tools for pla ion of smart teo er-aided design practice, self-r	eatment o ector syste ool heating astic mass chnologies n of too unning an	f polyn ems, in g applia ses, ca s and t ols/mol	ners, tools and telligent expert ances, injection ilculations and ools for plastic ds, numerical
10	project assignments, self-running assignments							
13.	Total he	ours	· · · ·		$6 ECTS \times 30 =$	= 180 hous	rs	
14.	Hours a	$\frac{11000}{1000}$	tion per activity:	15 1	30+30+30+30	+60=180	hours	20.1
15.	Lecture	s/Lab		15.1.	Lectures (15 v	veeks x 2)		30 hours
16	Drojaat	Work	/A ssignmonts	15.2.	Project assign	work)		30 hours
10.	Floject Wolk/Assignments 10.1.			10.1.	rioject assign	ments		30 nours
	16.2			16.2.	Individual ass	ignments		30 hours
	16.3.			16.3.	Self-study			60 hours
17.	. Points/Marks:							
	17.1. Exams							60 %
	17.2. Projects							30 %
	17.3. Attendance 10 %							
18.	. Grading scale				under 5	0 %		5 (five) (F)
					51-6	4 %		6 (six) (D)
					65-7-	4 %		7 (seven) (C)
					75-8	4 %		8 (eight) (B-)
					85-94 % 9 (nine) (A-/I			(nine) (A-/B+)
					95-100 % 10 (ten) (A/A+			
19.	Prerequ	isites	for taking the final exa	ım	Seminar work delivered and approved			
20.	Langua	ge			English			
21.	Course	evalu	ation		Student questionnaire			
22.	Textboo	oks						
	22.1	Instr	uction materials					
		No.	Author	r	Fitle	Publis	sher	Year
		1.	Irvin I. Rubin	Injection M	lolding:	Wiley-Int	ter	2007
				Theory and	Practice	science;		
		2.	Douglas Bryce	Plastic Inje Molding: N Process Fu	ction Ianufacturing ndamentals	IPLAS		February 19, 2016
		3.	M. Joseph Gordon Jr.	Total Qual Control for Molding	ty Process Injection	Wiley; 2 edition		May 3, 2010
		4.	Rafael Hinojosa	Introduction Injection Mo	to the Plastic olding Process	Amazon] Services]	Digital LLC	April 1, 2018

	22.2	Supplemental Instruction Materials							
		No.	Author	Title	Publisher	Year			
		1.	Jehuda Greener	Precision Injection Molding: Process, Materials, and Applications	Hanser	June 1, 2006			

Add	d. 3 Course program for the second level (second cycle - postgraduate) of							
1.	Course tit	le	V	irtual Design of Injection	on Molding Tools			
2.	Code		2	MSPDTP08				
3.	Study gro	oup(s)	N	Iodeling and Simulatio	on of Plastic Deformation			
			Т	echnologies and Proces	ses			
4.	The organ	nizer of the study progra	am "	"Ss. Cyril and Methodius" University in				
	(unit, inst	titute, department)	S	Skopje, Faculty of Mechanical Engineering				
5.	Level (first	st, second, third degree)) 5	Second				
6.	Academic	e year / semester	Ι	I/summer 7. EQ	CTS credits 6			
8.	Professor			Prof. dr Jasmina Chalos	ska			
9.	Prerequisi	ites for enrolling the cou	urse N	None				
10.	Course objectives (competences):							
	Students y	will get a theoretical, p	oractical an	nd comprehensive look	at injection mold design			
	and learn	to contribute to the ov	verall succ	cess of die design proje	ects. They will receive a			
	review of very detailed mold design concepts set forth in the context of the whole d							
	process. Using a virtual environment they will be able to solve practical problems in the							
11.	Course content:							
	The anatomy of a molds, types of molds, mold construction with common components and							
	their function, polymer materials, mold steel and their characteristics, shrink, plastic							
	product d	lesign, sprue, runner ar	nd gate, e	jection, basic mold ins	erting, slides and lifters,			
	cooling, v	enting, mold design pro	ojects.					
12.	Study met	thods:						
	Interactive	e lectures, auditory and	or laborat	ory practice, self runnin	g and/or team work on			
	project as	signments, self running	assignmen	nts	_			
13.	Total hou	rs		6 ECTS x 30 = 180 hours				
14.	Hours allo	ocation per activity:		30+30+30+30+60=180 hours				
15.	Lectures/I	Lab	15.1.	Lectures (15 weeks x 2	2) 30 hours			
			15.2.	Lab (student work)	30 hours			
16.	Project W	/ork/Assignments	16.1.	Project assignments	30 hours			
	-		160	T 1 1 1 1	20.1			
			16.2.	Individual assignment	s 30 hours			
			16.3.	Self-study	60 hours			
17.	Points/Ma	arks:						
	17.1.	Exams			70 %			
	17.2. Projects				20 %			
	17.3.	Attendance			10 %			
18.	Grading s	scale		under 50 %	5 (five) (F)			
		F		51-64 %	6 (six) (D)			
				65-74 %	7 (seven) (C)			

					75-84	%	8 (eight) (B-)			
					85-94	% 9 (1	nine) (A-/B+)			
					95-100	% 10	(ten) (A/A+)			
19.	Prerec	quisites	s for taking the final	exam	Seminar work delivered and approved					
20.	Langu	lage			English					
21.	Cours	e eval	uation		Student questionnai	re				
22.	Textb	ooks								
	22.1	Instr	uction materials							
		No.	Author		Title	Publisher	Year			
		1.	Beaumont J.P.		Runner and Gating Design Handbook. Tools for Successful Injection Molding	Hanser Pub.	2004			
		2.	Rong Zheng, Roger Tanner, Xi-Jun Fan	r I.	Injection Molding: Integration of Theory and Modeling Methods	Springer- Verlag Berlin Heidelberg	2011			
		3.	Herbert Rees		Understanding Product Design for Injection Molding	Hanser Gardner Publications	1996			
	22.2	Supp	elemental Instruction	Materia	ls		•			
		No.	Author		Title	Publisher	Year			
		1.	Allison, J., Li, M., Wolverton, C. and	Su, X	Virtual aluminum castings: an industrial application of ICME	JOM, Integrated Computationa I Materials Engineering	2006			

Add	1.3 Course program	for the second level (second cycle - postgraduate) of studies
1.	Course title	VIRTUAL DESIGN OF METALFROMING TOOLS
2.	Code	2MSPDTP09
3.	Study group(s)	Modeling and Simulation of Plastic Deformation Technologies and Processes
4.	The organizer of the study program (unit, institute, department)	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering - Skopje
5.	Level (first, second, third degre	e) Second
6.	Academic year / semester	II/summer 7. ECTS credits 6
8.	Professor	Prof. dr Atanas Kochov
9.	Prerequisites for enrolling the	None

10.	Course objectives (competences): Introduction to the concept of virtual engineering, Computer Aided technologies; Computer modeling of metal forming processes; application of software packages for numerical simulations of metal forming processes; optimization of processes, analyzing and recognizing possible problems during production, optimal design of processing technologies in virtual environment; advances of using virtual engineering technics for designing technologies and processes for metal forming. Course content: Advanced technology of sheet metal forming processes and tools design, process definition and molding; processes for hot and cold forging, rolling; virtual design of technologies and processes; computer modeling of processes of bending, blanking, drawing processes, deformation state analysis in virtual computer environment, optimization of processing technologies definition of processing technologies and processes definition and work of the shearing processes of the shearing processes of the shearing processes.							
12.	Study r team v	nethoo vork o	ds: Interactive lectures n project assignments	, auditory , self-rum	v and/or laboratory ning assignments	practice, s	elf-runnin	g and/or
13.	Total h	ours			6 ECTS x 30 = 18	30 hours		
14.	Hours a	allocat	ion per activity:		30+30+30+30+60	<u>=180</u> hou	Irs	
15.	Lecture	s/Lab	· · · · ·	15.1.	Lectures (15 weel	(xs x 2)		30 hours
				15.2.	Lab (student worl	x)		30 hours
16.	Project Work/Assignments		Assignments	16.1.	Project assignment	nts		30 hours
			16.2.	Individual assignments			30 hours	
				16.3.	Self-study			60 hours
17.	Points/Marks:							
	17.1. Exams 60				60 %			
	17.2.	2. Projects			$3\overline{0}$ %			
	17.3.	A	Attendance	10 %				
18.	Grading	g scale	2	under 50 % 5 (five) (F)				
		-			51-64	4 %		6 (six) (D)
					65-74	4 %	7	(seven) (C)
					75-84	4 %	8	(eight) (B-)
				85-94 % 9 (nine) (A-/				
10				95-100 % 10 (ten) (A/A				ten) (A/A+)
19.	Prerequisites for taking the final			king the final Seminar work delivered and approved				
20.	Language			English				
21.	Course evaluation Student questionnaire							
22.	Textbo	oks						
	22.1 Instruction materials							
		No.	Author		Title	Publis	sher	Year
		1.	Dorel Banabic	Sheet Metal FormingSpringerProcesses:Constitutive Modelingand NumericalSimulation			2016	
		2.	A.Saxena, B. Sahay	SimulationComputer AidedOxiEngineering in plasticdeformation processes		Oxford		2003

		3.	N. M. And Tang, S. C., Editors Wang	Computer Modeling of Sheet Metal Forming Process; Theory, Verification and Application	Pennsylvania: Metallurgical Society	1985
2	22.2	Supp	lemental Instruction N	Iaterials		
		No.	Author	Title	Publisher	Year
		1.	Yongseob Lim and Ravinder Venugopal	Process Control for Sheet-Metal Stamping: Process Modeling, Controller Design and Shop-Floor Implementation (Advances in Industrial Control)	Springer	2013

Add. 3		Course program for th	e seco	nd level (second cycle - pos	tgraduate) of		
1.	Course titl	le	M	lodeling and Simulation of S	heet Metal Forming		
			P	Processes			
2.	Code			MSPDTP10			
3.	Study grou	up(s)	N	Iodeling and Simulation of	Plastic Deformation		
			Т	Technologies and Processes			
4.	The organ	nizer of the study progra	am "	"Ss. Cyril and Methodius" University in			
	(unit, insti	itute, department)	S	Skopje, Faculty of Mechanical Engineering			
		- ·	S	kopje			
5.	Level (firs	st, second, third degree)	S	Second			
6.	Academic	year / semester	Ι	I/summer 7. ECTS	credits 6		
8.	Professor	•	P	rof. dr Jasmina Chaloska	·		
9.	Prerequisi	tes for enrolling the course	N	Jone			
10.	Course objectives (competences):						
	The know	vledge gained from this	course	allows the analysis of sh	eet metal forming		
	processes	by the methods of modeli	ng and	simulation as well as the in	nterpretation of the		
	results in order to improve the technology			Aim of the course is masterin	g the content in the		
	field of mo	odeling and simulation of p	rocesse	es in sheet metal forming tecl	nnologies.		
11.	Course co	ntent:					
	Theoretica	al bases and numerical mod	eling a	nd simulation of sheet metal	forming processes,		
	FEM anal	ysis and its application in	deform	ation processes, analysis of	factors influencing		
	on the cor	rectness of the modeling an	nd simu	lation of sheet metal formin	g, determination of		
	the stress-	- stain components, develo	of sheet metal formed produ	ucts, modeling and			
	optimization during cutting, blanking, fine blanking, deep drawing and bending processes.						
12.	Study met	hods:					
	Interactive	e lectures, auditory and/or 1	laborate	ory practice, selfrunning and	l/or team work on		
	project assignments, selfrunning assignments						
13.	3. Total hours			6 ECTS x 30 = 180 hours			
14.	Hours allo	ocation per activity:		30+30+30+30+60=180 hours			
15.	Lectures/L	Lab	15.1.	Lectures (15 weeks x 2)	30 hours		
			15.2.	Lab (student work)	30 hours		

16.	Project Work/Assignments			16.1.	Project assignments		30 hours
				16.2.	Individual assign	ments	30 hours
				16.3.	Self-study		60 hours
17.	Points/	Marks	5.	I			
	17.1.	I	Exams				70 %
	17.2.	F	Projects				20 %
	17.3.	A	Attendance				10 %
18.	Grading scale under 50 °		under 50 %		5 (five) (F)		
					51-64 %		6 (six) (D)
			-		65-74 %		7 (seven) (C)
					75-84 %		8 (eight) (B-)
					85-94 %	9 (nine) (A-/B+)
					95-100 %	10	O(ten)(A/A+)
19.	Prerequ	uisites	for taking the final example t	m S	Seminar work deliv	ered and approv	ved
20.	Langua	nge]	English		
21.	Course	evalu	ation	S	Student questionnaire		
22.	Textbooks						
	22.1 Instruction materials						
		No.	Author		Title	Publisher	Year
		1.	Vukota Boljanovic	5	Sheet metal	Industrial	2014
			5	f	forming	Press, Inc	
				1	processes and		
				(lie design		
		2.	Banabic, D.	1	Numerical	Springer,	2010
					Simulation of the	Berlin,	
					Sheet Metal	Heidelber	
					Forming	g	
					Processes. In		
					Sneet Metal		
				נ ן	Processes		
		3	Edward B. Magrah	1	Integrated	CPC	2009
		5.	Satvandra K Gunta F	נ ן	Product and	Dress	2009
			Patrick McCluskev, Pe	eter 1	Process Design	11035	
			Sandborn		and		
				1	Development		
	22.2	Supp	plemental Instruction Ma	aterials		1	
		No.	Author	, ,	Title	Publisher	Year
		1.	Prof. Dorel Banabic		Advanced	Springer,	2007
				1	Methods in	Berlin,	
				1	Material Forming	Heidelberg	

1	Course title		Augmented Reality and 3D V	isualization		
2	Code	2	2MSPDTP11			
3	Study group(s)	M	odeling and Simulation of	Plastic Deformation		
5.	Study group(b)	T	Technologies and Processes			
4.	The organizer of the study program	~~	Ss. Cyril and Methodius	" University in		
	(unit, institute, department)	S	Skopje, Faculty of Mechani	cal Engineering -		
		S	Skopje			
5.	Level (first, second, third degree)	S	Second			
6.	Academic vear / semester	Ĩ	I/summer 7. ECTS	credits 6		
8.	Professor		Assistant Prof. dr Tashko Riz	ov		
9.	Prerequisites for enrolling the course	N	Jone			
10.	Course objectives (competences):					
	This course will contribute towards understanding of the elementary components of the advanced visualization techniques in the augmented and virtual reality. Students will obtain knowledge and skills about the functions of the systems for augmented and virtual reality, the hardware and software components and their application and opportunities.					
11.	Course content: Definition and elementary topics of augmented and virtual reality. Historical development of the techniques for 3D visualization. Geometrical projection. Virtual reality. Augmented reality. Systems for augmented reality. Components of the systems for augmented reality. Optical vs. video augmentation. Hardware components of the systems for augmented reality. Determination of position and orientation. Visual systems for determination of position and orientation. Advanced technologies in the devices for determination of position and orientation. Key methods and techniques for augmented reality in relation to computer visualization. Recognition and tracking of pictures and/or schemes. Registration Occlusion					
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self-study and/or team work on project assignments, self-studying assignments					
13.	Total hours		6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:		30+30+30+30+60=180 hou	ırs		
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2) 30			
		15.2.	Lab (student work)	30 hours		
16.	Project Work/Assignments	16.1.	Project assignments	30 hours		
		16.2.	Individual assignments	30 hours		
		16.3.	Self-study	60 hours		
17.	Points/Marks:					
	17.1. Exams 60 %					
	17.2. Projects 30 °					
	17.3 Attendance 10.0					
10	Grading scale		under 50 0/	$\frac{1070}{5(f_{\rm WO})(E)}$		
10.	Grading scale			$\frac{J(IIVE)(F)}{f(viv)(D)}$		
			$31-04 \ \%$			
			75_9/ %	$\frac{1}{2} \left(\frac{1}{2} \left(\frac{1}{2} \right) \left(\frac{1}{2$		
			<u> </u>	$\frac{0 \text{ (right) (D-)}}{0 \text{ (ninc) (A / P+)}}$		
			03-74 /0			
			Q5_100 %	$\frac{9 \text{ (IIIIC)} (\text{A-/}\text{D}^+)}{10 \text{ (ten)} (\text{A}/\text{A}^+)}$		
10	Prerequisites for taking the final even		95-100 % Seminar work delivered and s	$\frac{9 \text{ (IIIIe)} (A-/B+)}{10 \text{ (ten)} (A/A+)}$		

21.	Course evaluation		Student questionnaire			
22.	Textbooks			•		
	22.1	Instru	uction materials			
		No.	Author	Title	Publisher	Year
		1.	Rizov T.	Fundamentals of augmented reality (in Macedonian)	MFS (Script)	2018
		2.	Woodrow Barfield	Fundamentals of Wearable Computers and Augmented Reality	CRC Press	2015
		3.	Dieter Schmalstieg, Tobias Hollerer	Augmented Reality: Principles and Practice (Usability)	Pearson Education	2017
		4.	Steve Aukstakalnis	Practical Augmented Reality: A Guide to the Technologies, Applications, and Human Factors for AR and VR (Usability)	Pearson Education	2016
	22.2 Supplemental Instruction N		lemental Instruction Materi	als	1	
		No.	Author	Title	Publisher	Year
		1.	Cawood, S., Fiala, M.	Augmented Reality: A Practical Guide	Pragmatic Bookshelf	2008

Add	I. 3 Course program for the se	econd level (second cycle - postgraduate) of studies							
1.	Course title	SENSORS AND ACTUATORS							
2.	Code	2MHT01							
3.	Study group(s)	Mechanics and mechanical systems/Mechatronics							
4.	The org	ganizei	r of the study program		"?	Ss. Cyril and M	Iethodiu	s" Uni	iversity in
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	(unit, ir	nstitute	e, department)		S	kopje, Faculty of	Mechan	ical En	gineering -
_	x 1/	~ .	1.1.1.1		S	корје			
5.	Level (tirst, s	econd, third degree)		S	econd	ECTO	1:+-	6
6. o	Acaden	nic yea	ar / semester		Assistant professor Jovana Jovanava				
ð. 0	Protess	or	for openling the source		A N	ssistant professor J	ovana Jo	ovanova	
9.	Course	object	tives (competences):		IN	one			
10.	Introduc	tion to	o physical principles on	whick	h :	are based modern	sensors	and intr	oduction to the
	characte	ristics	of the sensors. Introduct	tion to	o t	principles of the ac	tuators v	vork an	d application in
	mechatro	onics s	systems, their functionali	ity and	d_1	methods of motion	controll	ability.	11
11	Course	conte	nt·	-				-	
11.	Characte	eristics	s of the sensors: static a	nd dy	ma	amic. Physical prir	nciples o	f senso	rs. Acquisition,
	adaptatio	on and	l signal analysis. Sensor	s for	te	emperature, flow, f	orce and	d voltag	ge, velocity and
	accelerat	tion, o	ptic and ultrasound mea	asuren	ne	ents. Actuators in r	nechatro	nics sy	stems and their
	applicati	on. R	eview of electric motor	s, ele	cti	ro-magnetic actuat	ors, serv	/o-moto	ors, step-motors
	and linea	ar actu	ators. Non-conventional	actua	atc	ors and their princip	ples and	applica	tion. Intelligent
	actuators	5.							
12.	Study n	nethod	ls:						
	Interact	ive lee	ctures, auditory and/or la	borat	or	y practice, selfrunr	ning and	or team	n work on
	project	assign	ments, selfrunning assig	nmen	nts				
13.	Total hours					6 ECTS x 30 = 18	0 hours		
14.	Hours allocation per activity:					30+30+30+30+60	=180 ho	urs	
15.	Lecture	s/Lab		15.1		Lectures (15 week	(s x 2)		30 hours
1.6	D	XX 7 1		15.2	•	Lab (student work	()		30 hours
16.	Project	Work	Assignments	16.1	1. Project assignments			30 hours	
				16.2	2. Individual assignments			30 hours	
				16.3		Self-study			60 hours
17.	Points/N	Marks							
	17.1.	E	Exams						60 %
	17.2.	Р	Projects						30 %
	17.3.	A	Attendance						10 %
18.	Grading	g scale				under 50) %		5 (five) (F)
						51-64	- %		6 (six) (D)
						65-74	- %		7 (seven) (C)
				_		75-84	· %		8 (eight) (B-)
						85-94	+ %	9	(nine) (A-/B+)
10	Prerequ	isites	for taking the final evan	<u> </u>	S	95-100 eminar work delive	1 % Pred and	annrow	10 (ten) (A/A+) ed
$\frac{1}{20}$	Langua		for taking the final exam	1	F.	nglish		appion	cu
20.	Course	evalu:	ation		S	tudent auestionnair	·e		
22.	Textbo	oks	-			1			
	22.1	Instr	uction materials						
		No.	Author			Title	Publ	isher	Year

	1.	Petreski, Z., Gavriloski V.	Sensors and actuators in mechatronic systems	Combined lectures	2011						
	2.	Pawlak A.M.	Sensors and Actuators in Mechatronics : Design and Application	CRC Press	2007						
	3.										
22.2	Supplemental Instruction Materials										
	No.	Author	Title	Publisher	Year						
	1.	Bentley J.	Principles of Measurement systems	Springer	2005						
		Janocha Hartmut	Actuators	Springer, Verlag, Berlin	2004						
		Fraden J.	Handbook of Modern Sensors: physics, design and application	Springer	2004						

Add	1.3	Course program for the se	cond level (second	cycle - postgraduate)	of studies		
1.	Course title	e	Design of Plastic	Parts			
2.	Code		2MSPDTP12				
3.	Study grou	ıp(s)	Modeling and Simulation of Plastic Deformation				
			Technologies and	Processes			
4.	The organi	zer of the study program	"Ss. Cyril and	l Methodius" Univer	sity in		
	(unit, institute, department)		Skopje, Faculty	of Mechanical Engine	eering -		
			Skopje				
5.Level (first, second, third degree)Second							
6.	Academic	year/semester	II/summer	7. ECTS credits	6		
8.	Professor		Prof .Dr. Tatjana	Kandikjan			
9.	Prerequisit	tes for enrolling the course	None				
10.	Course obj	ectives (competences):					
	Understand	ding important design consider	ations in the proce	ess of designing with po	olymers and		
	plastics:						
	Material/pi	rocess selection.					
	Modeling	of plastic parts.					
	Structural	design of plastic parts.					
	Design for	manufacture and assembly.					

11.	Course content:Characteristics of polymer based materials used in product design: properties and selection.Functional and aesthetic aspects in the conceptual design of plastics products.Detail design of plastic parts. Design for production of plastic parts. Surface decoration of plastics parts. Design for joining and assembly.Computer-aided design of plastic parts and assemblies. Designing parts with aesthetic and ergonomic surfaces. Core/cavity modeling.Case studies: design of plastic bottles, containers, snap-fits and housings for home appliances.Total hours6 ECTS x 30 = 180 hoursHours allocation per activity:									
14	Hours	allocat	ion per activity.		30+30+30+30+60	=180 hours	rs			
15	Lecture	es/Lab	ion per detivity.	151	Lectures (15week	(x^2)	15	30 hours		
				15.2	2. Lab (student work)		30 hours			
16.	Project	Work/	Assignments	16.1	. Project assignmen	its		30 hours		
				16.2	. Individual assignm	nents		30 hours		
				16.3	. Self-study			60 hours		
17.	Points/	Marks	•					(A A)		
	17.1.		txams					60 %		
	17.2.	7.2. Projects 30						30 %		
	17.3.	A	Attendance			10 %				
18.	Grading	gscale			under 5)%		5 (five) (F)		
					51-64	4 %		6 (six) (D)		
				-	65-74	4%		$\frac{7 \text{ (seven)} (C)}{2 \text{ (i.i.)}}$		
	$\frac{75-84\%}{8}$ 8 (eight) (B-)									
				-	<u> </u>	+ %0 } %	<u> </u>	$\frac{10}{10}$ (ten) (A-/B+)		
19.	Prereat	isites	for taking the final exam	1	Seminar work delive	ered and a	nnrove	$\frac{10}{(\text{cm})(A/A^+)}$		
20.	Langua	ge		-	English		ppro · ·			
21.	Course	evalu	ation		Student questionnair	re				
22	Textbo	oks			1					
	22.1	Instr	uction materials							
		No	Author		Title	Public	her	Vear		
		1	Paul F Mastro		Plastics Product	Iohn W	ilev &	2016		
		1.			Design	Sons	ney æ	2010		
		2.	Robert A. Malloy		Plastic Part Design for Injection Molding	Hanse	r	2010		
		3.	Paul A. Tres	I F	Designing Plastic Parts for Assembly	Hanse	r	2014		
	22.2	Supp	blemental Instruction Ma	terials	5					
		No.	Author		Title	Publishe	r	Year		

Add	dd. 3 Course program for the second level (second cycle - postgraduate) of studies								
1.	Course title		Vi	irtual Manufacturing					
2.	Code		21	/ME01					
3.	Study group	p(s)	M	odeling and Simulation	on of	Plastic Deformation			
			Te	chnologies and Processe	es				
			Vi	rtual Manufacturing Eng	gineeri	ng (VME)			
4.	The organiz	zer of the study program (uni	it, "S	s. Cyril and Methodius	s" Uni	versity in Skopje,			
	institute, de	partment)	Fa	culty of Mechanical En	gineer	ing – Skopje			
			In	stitute of Production	on E	Engineering and			
			M	anagement					
~	x 1 (0°)	1.1.1.1		1 1					
5.	Level (first,	second, third degree)		cond degree	LOLO	1'.			
6. 0	Academic y	/ear / semester		summer /.	ECIS	credits 6			
8. 0	Professor	for even line the even	Pr N	of. Dr. Sc. Gligorche Vi	rtanosk	31			
9.	Prerequisite	es for enrolling the course		one omploted undergraduate	studio	C.			
10	Course obje	actives (competences).			studie	5			
10.	This course	will contribute to getting a	occupin	ted with the techniques	of vie	ual communication of			
	computer d	esign and advanced element	ts of vi	rtual production Advar	nced 3	D geometric modeling			
	in the direc	tion of making simulation	virtual	models and computer a	nimati	on Virtual techniques			
	for evaluation	ng products and production	es in virtual production.	liiiiiau	on. Antuar teeninques				
11	Commence		p1000055						
11.	Course cont	tent:		to al fam immunation of	1	aion and numberstion			
	Introduction	n to virtual manufacturing	g as a	tool for improving t	the de	sign and production			
	engineering	5. 3D graphics and concept	ots of	virtual reality and virt	ual pr	oduction. Definition,			
	application	of VM technology in	produ	ct design, manufactu	ring	processes, operation			
	managemen	it, relationships in the key do	omains	of applying vivi in viru	iai pro	duction. 3D advanced			
	dotail mana	sing special geometric mod	f wigue	1 noncontion shoiss of	Suanza Lichtin	tion of models, level			
	and shading	gement - LOD, principles of	or visua	medala for concernation	ngnun Lizina	the idea of computer			
	and shading	Graphic Virtual scenario	by	hoosing the appropria	nzing ata ta	als and techniques			
	Compositio	n and installation of comput	or simi	lation and animation S	imulat	ion of the behavior of			
	compositio	and instantion of comput	ng prov	nation and manufacture	nnulai	with CNC machines			
	Documentat	tion management in a v	irtual	production environment	parts nt thr	ough Internet WFR			
	technology	Simulation of the layout of	f mach	ines in the factory by a	nalyzi	ng and evaluating the			
	appearance	of virtual production		lifes in the factory by a	maryzn	ing and evaluating the			
12	Study moth	oda:							
12.	Interactive	ous. lectures auditory and/or lab	oratory	practice self running a	nd/or	team work on project			
	assignments	s self running assignments	oratory	practice, sen running a	111 u / 01	team work on project			
13	Total hours	s, sen running assignments		6 ECTS x 30 = 180 ho	ours				
14.	Hours alloc	ation per activity:		30+20+80+20+30=180	0 hours	5			
15.	Lectures/La	ıb	15.1.	Lectures (15 weeks x 2	2)	30 hours			
			15.2.	Lab (student work)	,	20 hours			
16.	Project Wor	rk/Assignments	16.1.	Project assignments		80 hours			
			16.2.	Individual assignments	S	20 hours			
			16.3.	Self-study		30 hours			
17.	Points/Mark	κs:		-					
	17.1.	Exams				30 %			
	17.2.	Projects				60 %			
	17.3.	Attendance				10 %			

18.	Grading	g scale		under	50 %	5 (five) (F)		
				51-	.64 %	6 (six) (D)		
				65-	-74 %	7 (seven) (C)		
				75-	.84 %	8 (eight) (B-)		
				85-	.94 %	9 (nine) (A-/B+)		
				95-1	00 %	10 (ten) (A/A+)		
19.	Prerequ	isites f	for taking the final exam	Seminar works delivered and approved				
20.	Langua	ge		English, Macedonia	an			
21.	Course	evalua	tion	Student questionna continual self evalu	ire and other met	hods for		
22.	Textboo	oks						
	22.1	Instru	uction materials					
		No.	Author	Title	Publisher	Year		
		1.	Gligorche Vrtanoski	Unauthorized	Faculty of	2018		
				lectures of Virtual	Mechanical			
				Manufacturing	Engineering			
		2.	Prashant Banerjee and Dan	Virtual	Wilye	2001		
			Zetu	Manufacturing				
		3.	Wasim A. Khan, Abdul	Virtual	Springer	2011		
			Raouf K. Cheng	Manufacturing				
	22.2	Supp	lemental Instruction Materials	-				
		No.	Author	Title	Publisher	Year		
	1. Rick Parent and otr.		Computer animation complete	Elsevier	2010			
		2. Dariush Derakhshani		Introducing Maya 6: 3D for Beginners	Sybex	2004		
		3.	Andrew Gahan	3ds Max Modeling for Games	Elsevier	2009		

Add.	3	Course program o	f the first, second and	f the first, second and third level (cycle) of studies					
1.	Course	title	Numerically controlled	d mach	ines and CNC progra	amming			
2.	Code		2VME07						
3.	Study g	roup(s)	Advanced manufacturing systems and technologies, Virtual						
			manufacturing engineering, Modeling and simulation of plastic						
			deformation technolog	gies and	l processes				
4.	The org	anizer of the study	University Ss. Cyri	1 and	Methodius-Skopje	e, Faculty of			
	program	n (unit, institute,	Mechanical Engineering, Institute for Production Engineering and						
	departm	nent)	Management						
5.	Level (f	first,second,third)	Second						
6.	Academ	nic year/semester	II/summer	7.	ECTS credits	6			
8.	Professo	or	Prof. Dr. Zoran Pandil	ov					
9.	Prerequ	isites for enrolling	None						
	the cour	rse							
10.	Course	objectives (competer	ices):						
	Introduct	tion to the basic c	haracteristics of mode	rn nur	nerically controlled	machines, their			
	construct	tion, types and app	lications. Qualification and ability for programming numerically						
	controlle	d machines.	-			-			

11.	Course Numeri Structur (moving control machine Types controll NC mil softwar turning	content cally (re of r g) com unit, F es and t of prog ed mac lling. (e. G-fur of 2 an	Controlled numerically ponents). O Precision o heir applica gramming chines usin denerating nctions for d 2.5 D par	machin contr Guidew f nume ation. of nume g CAD NC pro NC tur ts using	nes. Basic components of nur olled machines (base and frar vays. Main spindle. Main spin erically controlled machines. T merically controlled machines. D/CAM software. G-functions for ograms for milling of 2, 2.5 ar rning. M-functions for NC turnir g CAD/CAM software.	merically con ne (motionles dle drives. F ypes of nume Programmin, or NC milling nd 3 D parts ng. Generating	trolled machines. (s) and structural eed drives. CNC crically controlled g of numerically (. M-functions for using CAD/CAM NC programs for	
12.	Lecture compan assignm	s supported s s supported	orted by p s, guest lo elf running	resenta ecturers assignr	tions, interactive lectures, audi s from industry, self running nents	tory and/or la and/or team	boratory practice, work on project	
13.	Total ho	ours			6 ECTS x 30 hours = 180 h	ours		
14.	Hours a	llocatic	on per activi	ity:	30+30+30+30+60=180 hou	rs		
15.	Lecture	s/Exerc	vises	15.1.	Lectures (15 weeks x 2 hours)	<u></u>	30 hours	
				15.2.	Exercises (laboratory, auditory seminars, team work (15 week 2 hours)	s x	30 hours	
16.	Other fo	orms of	activity	16.1.	Project assignments		30 hours	
	16			16.2.	Individual assignments		30 hours	
				16.3.	Self-study		60 hours	
17.	Points/	Marks:						
	17.1.	Partial e	exams				50 %	
	17.2.	Project oral)	and individ	lual ass	signments (presentation: written a	and	40 %	
	17.3.	Activity	and partic	ipation	l		10 %	
18.	Grading	g criteri	a (points /	_	under	50 %	5 (five) (F)	
	grade)		u u		51-0	64 %	6 (six) (D)	
					65-'	74 %	7 (seven) (C)	
					75-	84 %	8 (eight) (B-)	
					85-1	94 %	9 (nine) (A-/B+)	
10	Drerequ	isites fo	or taking the	- F	Polized activities 16.1 16.2 16	3	10 (ten) (A/A+)	
17.	final ex	am	n taking til		Xuiizou douvitios 10.1, 10.2, 10.	5		
20.	Langu	age			English, Macedonian			
21.	Method	of mor	nitoring the	N	Mechanisms of internal evaluatio	n and surveys.	students	
	quality	of teacl	ning	c	questionnaire	•		
22.	Textboo	oks						
	Instruction materials							
		No.	Auth	or	Title	Publisher	Year	
	22.1.	1.	Zoran Par	ndilov	Numerically controlled machines and CNC programming –printed lectures			

	2.	Lacalle L.N.L.	Machine Tools for High	Springer	2009						
		de, Lamikiz A	Performance Machining								
	2	Alan Oyanby	CNC Mashining Handhaalt	MaCrow	2011						
	э.	Alan Overby	CINC Machining Handbook	Hill	2011						
	4.	Frank Nanfara.	The CNC workshop	Prentice	2002						
		Tony Uccello,	F	Hall (2nd							
		Derek Murphy		edition)							
	Supplemental Instruction Materials										
	No.	Author	Title	Publisher	Year						
	1.	N. K. Mehta	Machine	McGraw	2013						
			Tool	Hill							
			Design	Education							
			and	(India)							
			Numerical	Private							
			Control	Limited							
	2.	Suk-Hwan Suh,	Theory and design of CNC	Springer	2008						
		Seong-Kyoon	systems								
22.2		Kang,									
22.2.		Dae-Hyuk									
		Chung, Ian									
		Strou									
	3.	Jaromir Zeleny	Numerically controlled	CVUT	1999						
			machine tools and								
	4		accessories	T 1 / 1	2000						
	4.	Peter Smid	CNC Programming	Industrial	2008						
	~	T T T	Handbook (3rd Edition)	Press Inc.	2012						
	5.	James V.	Introduction to Computer	Pearson	2012						
		valentino,	Numerical Control (5th								
		Joseph	Edition)								
		Goldenberg									

Add	1.3	Course program for the see	cond level (second cyc	ele - j	postgraduate) of st	udies			
1.	Course title		Computer Integrated	l Ma	nufacturing				
2.	Code		2VME08						
3.	Study group	p(s)	Virtual Manufacturing Engineering (VME), Modeling						
			and simulation of pla	astic	deformation techno	logies and			
			processes						
4.	The organiz	zer of the study program (unit,	"Ss. Cyril and Methodius" University in Skopje,						
	institute, department)		Faculty of Mechanical Engineering – Skopje						
		- ,	Institute of Pro	duct	ion Engineering	and			
			Management		0 0				
			6						
5.	Level (first	, second, third degree)	Second degree						
6.	Academic y	year / semester	II/summer	7.	ECTS credits	6			
8.	Professor		Prof. Dr. Sc. Gligore	he V	/rtanoski				
9.	Prerequisite	es for enrolling the course	None						
		-	Completed undergraduate studies						

10.	 Course objectives (competences): This course will contribute to getting acquainted with the techniques of at the operations level in manufacturing industries having a concentration in computer applications. The techniques assist in the design and implementation of manufacturing process systems that include numerical control equipment, computer aided part programming, computer aided manufacturing, factory automation, and flexible manufacturing cells and systems. 									
11.	Introduction of Computer Integrated Manufacturing. CIM is used to describe the complete automation of a manufacturing plant, with all processes functioning under computer control with digital information tying them together. Overview computer aided manufacturing (link from CAD to the production machine). Recapitulation of CAD modeling to serve as the basis for the further detailed CAM systems. Principles of tool path generation (CAM) for various purposes ex. machining of complex shapes. Feature-based tool path generation. NC post-processors. The Robots in manufacturing are comprised the simulation and programming of a robot cell. Methods of computer aided engineering CAE to analyze and optimize complex structures. Principles, methods and algorithms for computer aided process planning. Computer controlled clamping of workpieces. Computer aided quality control CAQ. Through the integration of computers, manufacturing can be faster and less error-prone. The main advantages of CIM are the ability to create flexible design and automated manufacturing processes.									
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or team work on project assignments, self running assignments									
13.	Total ho	ours			6 ECTS x 30 =	180 hours	5			
14.	Image: Hours allocation per activity:30+20+80+20+30=180 hours									
15.	Lecture	s/Lab		15.1.	Lectures (15 w	eeks x 2)		30 hours		
				15.2.	Lab (student w	ork)		20 hours		
16.	Project	Work/	Assignments	16.1.	Project assignm	ients		80 hours		
				16.2.	Individual assig	gnments		20 hours		
				16.3.	Self-study			30 hours		
17.	Points/N	Marks:						20.0/		
	17.1.		xams					30 %		
	17.2.	P	rojects				60 %			
10	1/.3.	<i>P</i>	Attendance			1-n 50 0/				
18.	Grading	scale		┝	une	101 3U %		$\frac{3(\text{live})(\text{F})}{6(\text{circ})(\text{D})}$		
				\vdash		51-04 70 65 71 0/		$\frac{1}{7}$ (seven) (C)		
				┝		75-84 %		$\frac{1}{8}$ (eight) (R_)		
				┝		85-94 %		$(nine) (\Delta/R+)$		
				┝	g	5-100 %	,	10 (ten) (A/A+)		
19	Prerequ	isites f	for taking the final exam		Seminar works de	livered an	d approved	d		
20.	Langua	ge	ter witting the finder examin		English. Macedor	ian				
21.	Course	evalua	tion		Student questionn continual self eva	aire and o luation	ther metho	ods for		
22.	Textboo	oks		<u> </u>						
	22.1	Instru	uction materials							
		No.	Author		Title	Publ	isher	Year		
		1.	Gligorche Vrtanoski		Unauthorized	Faculty	of	2018		
					lectures of CIM	Mechan	ical			
						Enginee	ering			
		2.	K. Asai, S. Takashima		Manufacturing, Automation	Springe	r	2001		

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			Systems and CIM								
			Factories								
	3.	Mikell P. Groover	Automation,	Prentice Hall	2007						
			production	Press							
			systems, and								
			computer-								
			integrated								
			Manufacturing								
22.2	Supp	Supplemental Instruction Materials									
	No.	Author	Title	Publisher	Year						
	1.	James A. Rehg	Introduction to	Prentice Hall	2002						
			Robotics in CIM	Press							
			Systems								
	2.	James A. Rehg, Henry W.	Computer	Prentice Hall	2004						
		Kraebber	Integrated	Press							
			Manufacturing								
	3.	Kunwoo Lee	Principles of	Prentice Hall	1999						
			CAD/CAM/CAE	Press							
			Systems								

Add	I. 3Course program for the sec	cond level (second cycle - postgraduate) of studies				
1.	Course title	Intelligent Processes and Smart Technologies				
2.	Code	2VME04				
3.	Study group(s)	Virtual Engineering, Modeling and simulation of plastic deformation technologies and processes				
4.	The organizer of the study program	"Ss. Cyril and Methodius" University in				
	(unit, institute, department)	Skopje, Faculty of Mechanical Engineering -				
5.	Level (first, second, third degree)	Second				
6.	Academic year / semester	II/summer 7. ECTS credits 6				
8.	Professor	Prof. d-r Valentina Gecevska				
9.	Prerequisites for enrolling the course	None				
10.	Course objectives (competences):					
	Algorithmic and non-algorithmic meth	ods for intelligent processes design and their				
	application in production technologies	and systems. Basic concepts and algorithms for				
	heuristic modeling: decision making, kno	wledge bases & expert systems, genetic algorithms,				
	evolutionary algorithms, fuzzy logic, neu	aral networks. Design and modeling of intelligent				
	production processes. Characteristics of sr	nart processes and smart technologies application in				
	smart concepts (factory of the future, indu	stry 4.0, smart factory, smart products).				

11.	 methods of design, complementarity with mathematical logic. Heuristic approach. Modeling and process notation tools. Cognitive design and modeling techniques. Basic concepts of artificial intelligence (AI): non-algorithmic approach, symbolic design, knowledge-based decision making logic, search strategies, efficiency. Elements of intelligent systems: knowledge base, heuristic search, presentation of declarative and procedural knowledge (rules, procedures, semantic networks), logical decision, tools and programming languages. Expert Systems (ES). ES methods for modeling and design. Database vs. Knowledge Base. Advanced techniques for intelligent systems design (ISD): discrete simulation, knowledge based systems, neural networks, fuzzy logic, genetic algorithms, evolutionary algorithms. Intelligent Production Processes (IPP): definition, types, structure, development. Modeling and simulation of IPP with application of advanced techniques for ISD. Smart technologies for Factory of the Future in Industry 4.0. Digitalization with advances in information technologies applied in industry and production processes. Application of ICT concepts (IoT, Cloud Computing, Cyber Physical Systems, Digital Twin concept, RFID, Big Data etc.) in manufacturing processes for smart factory, smart products, smart technologies, smart thinking, road to intelligent factory. Smart processes related to: industrial challenges for manufacturing companies, enabling technologies that push development capabilities, domains for development and innovation as, intelligent and adaptive manufacturing systems; digital companies; smart factory with performances and processes agile, connected and optimized across network; digital twin PLM concept for product and manufacturing, person-machine collaboration; customer based manufacturing. 2. Study methods: Interactive lectures, auditory and/or laboratory practice, self-running and/or team work on project assignments. 							
12.	Study meth Interactive	lods: lectures, auditory and/or la	aborat	ory practice, self-running	g and/or team work on			
10	project assi	ignments, sell-running assi	gnme					
13.	Total hours	<u>.</u>		6 ECTS x 30 = 180 hc	ours			
14.	Lectures/L	ation per activity.	15 1	$\frac{30+30+30+30+60=180 \text{ nours}}{1 \text{ Leastures (15 weaks x 2)}}$				
15.		10	15.1	Lab (student work)	2) 30 hours			
16.	Project Wo	ork/Assignments	16.1	. Project assignments	30 hours			
			16.2	. Individual assignment	s 30 hours			
			16.3	. Self-study	60 hours			
17.	Points/Mar	ks:	1	- I				
	17.1.	Exams			60 %			
	17.2.	Projects			30 %			
	17.3.	Attendance			10 %			
18.	Grading sc	ale		under 50 %	5 (five) (F)			
-	0			51-64 %	6 (six) (D)			
				65-74 %	7 (seven) (C)			
				75-84 %	8 (eight) (B-)			
			Ļ	85-94 %	9 (nine) (A-/B+)			
1.0				95-100 %	10 (ten) (A/A+)			
19.	Prerequisite	es for taking the final exan	n	Seminar work delivered	and approved			
20.	Language			English				
21.	Course eva	luation		Student questionnaire				

Student questionnaire

22.	Textbo	oks								
	22.1	Instru	action materials							
		No.	Author	Title	Publisher	Year				
		1.	Kusiak A.	Computational intelligence in design and manufacturing	New York: John Wiley & Sons, cop.	2016				
		2.	Goldbertg D.	Genetic Algorithms, Neural Networks and Fuzzy Logic in Search, Optimization and Machine Learning	AW- Pub.Comp.	2012				
	-	3.	Z.W. Luo	Smart Manufacturing Innovation and Transformation: Interconnection and Intelligence	IGI Global, Publ.	2014				
	22.2	Supplemental Instruction Materials								
		No.	Author	Title	Publisher	Year				
		1.	Moon I., Lee G., Kiritis D.	Advances in Production Management Systems. Smart Manufacturing for Industry 4.0	Springer	2018				
		2.	Cus F. Gecevska V.	Development of Intelligent and Innovative Tools for Production Process Engineering and Sustainable Management	University of Maribor, Slovenia	2013				
		3.	Tao F.	Digital Tween Driven Smart Manufacturing	Elsevier	2018				

Add	1. 3	Course program for the sec	cond level (second cycle - postgraduate) of studies
1.	Course title	2	Business Information Systems
2.	Code		2IIM02

3.	Study g	roup(s)		II	Μ			
4.	The org	ganizei	r of the study program		"	Ss. Cyril and M	lethodius	s" Un	iversity in
	(unit, in	nstitute	e, department)		S	kopje, Faculty of	Mechani	cal En	gineering -
			· • /		S	kopje			0 0
5.	Level (first, s	econd, third degree)		S	econd			
6.	Acaden	nic yea	ar / semester		I/winter 7. ECTS credits 6				
8.	Profess	or			Prof. dr Robert Minovski				
9.	Prerequ	isites	for enrolling the course		None				
10.	Course The ma of the determi	object in obj influe ne app	tives (competences): ective of the course is to nce of information sys- proaches to optimize tho	o prep stems se asp	oar o peo	re the participants to on certain aspects cts.	o be capa of the	able of organiz	doing analysis ations and to
11.	Course Types of and sof systems improve	conter of info tware; s. Info ement	nt: ormation systems. Meth data bases. Strategic us ormation Technology of business processes. K	odolo e of i (IT) Knowl	ogi nf ar lec	tes for design of in Formation. Organizate and the design of dge Management and	nformatio ational ir work/w nd visual	on syste npacts ork pl ization	ems; hardware of information laces. IT and
12.	Study n Interact	nethod ive lea	ls: ctures, team work (if ap	plicab	ole	e), project assignme	ents		
13.	Total h	ours				6 ECTS x 30 = 18	0 hours		
14.	Hours a	llocat	ion per activity:			30+30+30+30+60	=180 ho	urs	
15.	Lecture	s/Lab		15.1		Lectures (15 weeks x 2)			30 hours
				15.2	•	Lab (student work)			30 hours
16.	Project	Work	/Assignments	16.1	•	. Project assignments			30 hours
				16.2	2. Individual assignments			30 hours	
				16.3	•	Self-study			60 hours
17.	Points/N	Marks					<u> </u>		
	17.1.	E	Exams						50 %
	17.2.	Р	rojects						50 %
	17.3.	A	Attendance						
18.	Grading	g scale	;			under 50) %		5 (five) (F)
						51-64	%		6 (six) (D)
						65-74	%		7 (seven) (C)
						75-84	%		8 (eight) (B-)
						85-94	%	9	(nine) (A-/B+)
						95-100)%		10 (ten) (A/A+)
19.	Prerequ	isites	for taking the final exan	1	S	eminar work delive	ered and	approv	ed
20.	Langua	ge			E	nglish			
21.	Course	evalu	ation		S	tudent questionnair	e		
22.	Textboo	oks							
	22.1	Instr	uction materials		_				
		No.	Author			Title	Publi	sher	Year

	1.	/	Actual materials (presentations, papers,) in the field of Business Info. Systems	/	/
	2.	K. Pearlson, C. Saunders	Managing and using information systems	Jonh Wiley & Sons Inc	2006
	3.				
22.2	Supp	lemental Instruction Materia	ls		
	No.	Author	Title	Publisher	Year
	1.				

Add	I. 3 Course	e program for th	e secoi	nd level (second	l cyc	le - pos	tgraduate)	of studies
1.	Course title		Iı	nnovation Mana	gem	ent		
2.	Code		2	2MSPDTP13				
3.	Study group(s)		V	Virtual Engineering, Modeling and simulation of				
			p	plastic deformation technologies and processes				
4.	The organizer of the	study program	Iı	nstitute for	Proc	luction	and Ind	ustrial
	(unit, institute, depar	rtment)	E	ngineering,	Facı	ulty o	of Mech	anical
			E	Ingineering "S	s.	Cyril a	and Meth	odius"
			U	Iniversity in Sko	opje,	- Skopj	e	
5.	Level (first, second,	third degree)	S	econd				
6.	Academic year / sem	nester	Ι	[/ summer	7.	ECTS	credits	6
8.	8. Professor Prof. dr Radmil Polenakovikj							
9.	Prerequisites for enre	olling the course	N	lone				
10.	Course objectives (c	ompetences):						
	Students will be cap	able to recognize	e the ne	ed of innovation	ns fo	or compa	ny develop	ment, but
	also for developmer	nt of regional and	d natio	nal economy; to	o im	plement	different i	nnovation
	models in the compa	ny hwere student	t perfor	ms his/her day-t	:o-da	y job or	internship	
11.	Course content:							
	About creativity; ba	sic principles of	innova	tiveness; Innov	atior	n proces	ses; Develo	opment of
	innovation products	and services; Inn	ovatior	n models; Intelle	ectua	l proper	ty rights; Ir	nportance
	of innovation for the	national econom	y; Inno	vativeness on th	ne na	tional le	vel	
12.	Study methods:							
	Interactive lectures,	auditory and/or la	aborator	ry practice, selfr	unni	ng and/o	or team wo	ork on
	project assignments,	selfrunning assig	gnments	5				
13.	Total hours			6 ECTS x 30 =	= 180) hours		
14.	Hours allocation per	activity:		30+0+60+30+	60=1	80 hour	S	
15.	Lectures/Lab		15.1.	Lectures (15 w	veeks	s x 2)		30 hours
			15.2.	Lab (student w	/ork)			0 hours

16.	Project	Worl	x/Assignments	16.1.	Project assignment	nts	60 hours	
				16.2.	Individual assignment	ments	30 hours	
				16.3.	Self-study		60 hours	
17.	Points/	Marks	3:					
	17.1.]	Exams				50 %	
	17.2.	1	Projects				40 %	
	17.3.	1	Attendance				10 %	
18.	Grading	g scal	e		under 5	0 %	5 (five) (F)	
		_			51-6	4 %	6 (six) (D)	
					65-7-	4 %	7 (seven) (C)	
					75-84 %		8 (eight) (B-)	
					85-9-	4 %	9 (nine) (A-/B+)	
10	D	••••	<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		95-10	0%	10 (ten) (A/A+)	
19.	Prerequ	iisites	for taking the final exam	1 2	Seminar work deliv	ered and appro	oved	
20.	Langua	lge		1	English			
21.	Course evaluation				student questionnai	re		
22.	Textbooks							
	22.1 Instruction materials							
		No.	Author		Title	Publisher	Year	
		1.	Polenakovikj R.,	I	nnovation	NCDIEL	2013	
			Markovska M.	n	nanagement	print		
		2.	Different authors	S	Selected case			
				s	tudies, videos,			
				J	ournal papers,			
		3.						
	22.2	Sup	plemental Instruction Ma	terials				
		No.	Author]	Title	Publisher	Year	
		1.	M. Trott	Ι	nnovation	Person	2017	
				N	Aanagement and			
				1	New Product			
					Development (6th			
	2 V Coffin D Mitchell		1 1	nnovation	Red Cloba	2016		
		۷.	K. Oomin, K. Wittehen		Management.	Press	2010	
				F	Effective strategy	11055		
				a	and			
				i	mplementation			
		3						
		5.						

Add. 3		Course program for the second level (second cycle - postgraduate) of studies
1.	Course title	Feasibility study design

2.	Code		,	2MSPDTP14					
3.	Study grou	p(s)		SEE					
4.	The organi	zer of the study program	•	"Ss. Cyril and Methodius" University in					
	(unit, instit	ute, department)		Skopje, Faculty o	of Mechanio	cal Enginee	ering -		
			1	Skopje					
5.	Level (first	, second, third degree)		Second					
6.	Academic	year / semester		I/winter	7. $ $ ECTS	credits	6		
8.	Professor	0 11: 1	1	full Professor Ljut	oomir Draki	ulevski, Phl)		
9.	Prerequisit	es for enrolling the course	-	None					
10.	Course obj	ectives (competences):		:		1 fage:1.:1:4			
	Inis aim o	of the course is to develo	p part	rough performing	o understan	a reasibility	y analysis.		
	differing si	ize and complexity A fea	sihility	analysis is need	ed before s	tarting a ne	w project		
	developing	a new product or service.	establ	ishing a new busit	ness. or upp	rading and	modifying		
	existing bu	sinesses A feasibility analy	vsis is	designed to establ	lish whether	r a project o	or initiative		
	is worth th	e investment in time and	money	y needed to get it	off the gro	ound. The c	ourse also		
	utilizes pra	ctical situations, using varie	ous an	alytical and assess	ment tools.				
11.	Course cont	ent:							
	The feasibil	ity analysis is needed to an	alyze	and evaluate a pro	posed proje	ect to detern	nine if it is		
	technically,	commercially and finance	ially f	easible. In this s	ense the c	ourse evolv	ves around		
	understandi	ng and explain central	conce	pts, models and	methods in	n feasibilit	y aspects.		
	Furthermore included are the aspects of critically examining how a project has been planned,								
	conducted, c	completed and evaluated							
12.	Study metho	ods:							
	Class Sessi	on Group Discussions Sin	mulati	ons exercises Cas	se studies	and Problem	m Solving		
	Exercises, Ir	ndividual assignments, Ten	nplates	and tools					
13.	Total hours	5		6 ECTS x 30 = 180 hours					
14.	Hours allow	cation per activity:	151	30+30+30+30+60=180 hours					
15.	Lectures/La	ab	15.1.	Lectures (15 weeks x 2)		30 hours			
16	Draigat We	nlr/A agi anno anta	13.2.	Lab (student wo	ork)		30 hours		
10.	Project wt	ork/Assignments	10.1.	Project assignm	ents		50 nours		
			16.2.	Individual assig	nments		30 hours		
			16.3.	Self-study			60 hours		
17	Dointa/Mon	1							
1/.	17 1	ко. Exams					60 %		
	17.2	Projects					30 %		
	17.2.	Attendance					10 %		
10	I/.J.	ala		undan	50.0/	4	10.70		
10.	Grading sc	aic		51_	<u>.64 %</u>		6 (six) (D)		
			-	65-	.74 %	7($\frac{O(SIX)(D)}{Seven}(C)$		
				75-	.84 %	8(eight) (B-)		
			⊢	85-	.94 %	9 (nin	e) (A - / R +)		
				95-1	00 %	10 (te	(A/A+)		
19.	Prerequisit	es for taking the final exan	ı	Seminar work deli	ivered and a	approved	, ()		
20.	Language	~		English					
21.	Course eva	luation		Student questionna	aire				
22.	Textbooks		I						
	22.1 Ins	struction materials							

	No.	Author	Title	Publisher	Year			
	1.	Christie Karis	Feasibility Study: Startup & Sustainability	Create Space Independent Publishing Platform	2008			
	2.	Jerome Katz		McGraw-Hill Higher Education; 5 edition	2017			
	3.	Bruce Barringer		Pearson; edition	2015			
22.2	Supplemental Instruction Materials							
	No.	Author	Title	Publisher	Year			
	1.							

Add	l. 3	Course program of the	first, second and third level (c	ycle) of	studies			
1.	Course	title	CAD/CAM systems					
2.	Code		2MSPDTP15					
3.	Study g	roup(s)	Modeling and simulation of plastic deformation technologies					
			and processes, Advanced	d man	ufacturing systems	and		
			technologies					
4.	The org	anizer of the study	University Ss. Cyril and	Methodi	ius-Skopje, Facult	y of		
	program (unit, institute, Mechanical Engineering, Institute for Production Engineering					ering		
	departm	nent)	and Management					
5.	Level (1	first,second,third)	Second					
6.	Academ	nic year/semester	II/summer	7.	ECTS credits	6		
8.	Professor		Prof. Dr. Zoran Pandilov	Prof. Dr. Zoran Pandilov				
			Prof. Dr. Gligorche Vrtanoski					
9.	Prerequ	isites for enrolling the	None					
	course							
10	Course	objectives (competences):						
	Introdu	ction to the basic elements	of CAD / CAM systems and the	eir appli	cation			
11	Course	content:						
	Historica	al development of CAD/C	CAM systems. Theoretical basi	cs of C	AD/CAM systems.	Basic		
	elements	of CAD/CAM systems. (CAD/CAM hardware, CAD/CA	M softw	vare. Geometric mode	eling.		
	Types of	f geometric modeling. Con	nputer graphics. Data exchange	and inte	gration, Process plan	ning,		
	and path	tool generation. CAD/CA	M programming. Connection/i	ntegrati	on of CAD/CAM sys	stems		
	with nun	nerically controlled machin	nes. Future directions in the deve	elopmer	nt of CAD/CAM syste	ems.		
12	Study me	ethods:						
•	Lectures	supported by presentation	ons, interactive lectures, aud	itory an	nd/or laboratory pra	ctice,		
	company	visits, guest lecturers from	n industry, self running and/or t	team wo	ork on project assignm	nents,		
	self runn	ing assignments						

13	Total h	ours				6 ECTS x 30 hours = 180 hours			
14	Hours a	allocati	on per activity:			30+30+30+30+60=180 hours			
	Lecture	s/Ever	cises	15.1	I	ectures (15 weeks x 2 hours)		30	hours
15	Lecture	5/ LACI	01808	15.1.		tectures (15) weeks x 2 hours)		30	1
•				15.2.	E	xercises (laboratory, auditory),		30	nours
					se	minars, team work (15 weeks x 2			
					hc	ours)			
16	Other f	orms of	f activity	16.1.	F	Project assignments		30 hours	
•				16.2.	I	ndividual assignments		30	hours
				16.3.	S	Self-study	60	hours	
17	Points	Marks	•						
1,	17.1	Partial	evame						50 %
·	1/.1	i ai tiai	CAdillo						50 /0
		D		· · · · ·		······································			40.0/
	1/.2	Project	and individual	assignm	ients (pi	resentation: written and oral)			40 %
									10.0/
	17.3	Activit	y and participat	10n					10 %
	•				[
18	Gradin	g criter	ia (points / grad	le)		under 5	0%	5 (five) (F)	
•						51-6	4 %	6 (six) (D)	
						65-7	4 %	7 (seven) (C)	
						75-8	4 %	8 (eight) (B-)	
						85-9	4 %	9 (nin	e) (A-
								× ×	(B+)
						95-10	0 %	1() (ten)
								- C	A/A+)
19	Prereat	uisites f	or taking the fir	nal	Realiz	ed activities 16.1, 16.2, 16.3		(-	
	exam								
20	Langu	age			Englis	h Macedonian			
20	Lungu	uge			Lingins				
· 21	Method	lofmo	nitoring the gu	lity of	Mecha	unisms of internal evaluation and su	MUANC	students	
<i>L</i> 1	taashin	1 01 1110 ~	morning the qua	inty of			Iveys	, students	
วว	Taxtha	<u>g</u> alra			questi	Sinane			
ZZ .	Textbo	oks							
•		Instru	ction materials						
		No	Auth	or		Title	I	Publishe	Year
		· 1	Zoran Dandil	W	C	AD/CAM systems printed			
		1.	Zoran Fanund) v		aturas			
		2	<i>V</i>				D	4:	100
		۷.	Kunwoo Lee		PI	TINCIPLES OF CAD/CAM/CAE	Pren	luce	199
	22.1.				1 .		Hall	<u> </u>	9
		3.		Ibra	<u>uni</u>	CAD/CAM: Theo	Mc	Graw	200
				<u>m</u>		ry And Practice,	Hill		6
				Zei	<u>d</u>	Second Edition			
		4.	M. Groover			CAD/CAM:	Pear	son	200
						Computer-Aided			6
						Design and			
						Manufacturing			
		Suppl	emental Instruc	tion Ma	terials				
	22.2.	No.	Аль+h	or		Titla	Т	Dublisha	Vaar
			Auth	01		11110	1	uonsne	I Cal

	•			r	
	1.	P.Radhakrishan,	CAD/CAM/CIM	New Age	200
		S.Subramanyan, V. Raju		Internationa	8
				1 Publishers	
	2.				
	3.				
	4.				
	5.				

Add	1.3 Course program for the second level (second cycle - postgraduate) of studies									
1.	Course title	e		Geometric Tran	sforr	nations	and Defor	mations in		
				3D						
2.	Code			20MI08						
3.	Study grou	p(s)		MSPDTP						
4.	The organi	zer of the study program		"Ss. Cyril and	M	ethodius	" Univers	ity in		
	(unit, instit	tute, department)		Skopje, Faculty Skopie	of N	Mechanio	cal Enginee	ering -		
5.	Level (first	t, second, third degree)		Second						
6.	Academic	year / semester		I/winter and	7.	ECTS	credits	6		
		•		summer						
8.	Professor			Assoc. prof. d-r	Emil	ija Celak	koska			
9.	Prerequisit	es for enrolling the course		Completed B.Sc						
10.	Course obj	ectives (competences):	1 / 1	1 4 1 4 41 1		C	1	,		
	Mastering	mathematical concepts and	a tool	s related to the d	omai	n of app	olication of	geometry		
	for 5D tran	stormations and deformation	ons.							
11.	Course content:									
	Analytic geometry of curves and surfaces; Characteristics of curves and surfaces; Curvilinear									
	coordinate	systems and parametrization	ons; L	$\frac{1}{1}$ $\frac{1}{1}$ $\frac{1}{2}$ $\frac{1}{2}$	ear tr	ansform	ations; Def	ormations		
	in 3D; M	iethods of analysis pract	form	applied in 3L	ge ge	ometry;	Sonware	tools for		
	representat				atio	15.				
12.	Study meth	nods:			10					
	Interactive	lectures, auditory and/or	labor	atory practice, se	elfrui	nning an	d/or team	work on		
	project assi	ignments, selfrunning assig	gnmer	nts						
13.	Total hours	S		6 ECTS x 30 = 180 hours						
14.	Hours allo	cation per activity:	1 7 1	30+30+30+30	+60=	=180 hot	urs	20.1		
15.	Lectures/L	ab	15.1	Lectures (15 v	veeks	s x 2)		30 hours		
16	Draigat W	orle/A agianmonta	15.2	. Lab (student v	Lab (student work)			30 hours		
10.	Project we	ork/Assignments	10.1	. Project assign	ment	S		30 nours		
			16.2	. Individual ass	ignm	ents		30 hours		
			16.3	Self-study			60 hours			
17.	Points/Mar	·ks:	I				1			
	17.1.	Exams						60 %		
	17.2.	Projects			30 9					
	17.3. Attendance 10						10 %			
18.	Grading sc	ale		unde	er 50	%		5 (five) (F)		

				51-6	4 %	6 (six) (D)			
				65-7	4 %	7 (seven) (C)			
				75-8	4 %	8 (eight) (B-)			
				85-9	4 %	9 (nine) (A-/B+)			
				95-10	0 %	10 (ten) (A/A+)			
19.	Prerequ	isites	for taking the final exam	Realized activities 15.2 and 16.1					
20.	Langua	ıge		English					
21.	Course	evalua	ation	Student questionnai	re				
22.	Textbo	oks							
	22.1	Instru	uction materials						
		No.	Author	Title	Publisher	Year			
		1.	Cupona G., Celakoski N.,	Higher	Prosvetno	1994			
			Trpenovski B.	Mathematics	Delo				
				III					
		2.	Tuneski N., Celakoska E.	Introduction in	Authors	2010			
				MATLAB					
	22.2	0		1					
	22.2	Supp	elemental Instruction Materia	lls	r				
		No.	Author	Title	Publisher	Year			
		1.	Michael E. Mortenson	Geometric	Industrial	2007			
				Transformations	Press,				
				for 3D Modeling	Inc.				
1		1							

Add. 3	3 Course program for the second level (second cycle-postgraduate) of studies							
1.	Course title		MATLAB Prog	rammi	ng			
2.	Code		20MI09					
3.	Study group(s)	Modeling and Technologies at	Simula	tion of Plastic Deformat	ion		
4.	The organize (unit, institute	r of the study program e, department)	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering - Skopje, Institute for Manufacturing Engineering and Management					
5.	Level (first,	second, third degree)	Second					
6.	Academic ye	ar / semester	I/winter and summer	7.	ECTS credits	6		
8.	Professor		Assistant profes	sor Bo	jan Prangoski			
9.	Prerequisites	for enrolling the course	completed unde	rgradu	ate studies			
10.	Course objec Introduction concepts.	tives (competences): to the MATLAB programm	ning environment	and th	ne fundamental programm	ing		
11.	Course conte The basic con functions; arr	nt: ntrol statements: branching rays.	statements, iterat	ion (fo	r-loops and indefinite loo	ps);		

12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or teamwork on										
10	project	assign	ments, self running a	assignm	nen	ts	100	1			
13.	Total	hours	• ,• •,			6ECTSx3	30 = 180	hours			
14.	Hours	$\frac{1}{1}$	tion per activity:	15 1	1	30+30+30	0+30+6	0=180 hours	20.1		
15.	Lectu	res/Lab		15.	<u>1.</u>	Lectures			30 hours		
16	Ducia	-+ W/1		15.2	2. 1	Lab (student	work)		30 hours		
10.	Projec	ct work	Assignments	10.1	1.	Project assign	- iments		30 hours		
				16.2	2.	Individual as	signme	ents 30 hours			
17	Dointa	Manlea		16.3	5.	Self-study			60 nours		
1/.	Points/	Ever	20						50.9/		
	1/.1	EXal	115						30 %		
	17.2.	Proje	ects					40 %			
	17.3.	Atter	ndance						10 %		
18.	Gradi	ng scale	2			under 50 %			5 (five) (F)		
100			-			51-64 %			$\frac{6(110)(1)}{6(six)(D)}$		
						65-74 %			7 (seven) (C)		
						75-84 %		8 (eight) (B-)			
					(nine) (A-/B+)						
				95-100 % 10 (ter							
19.	Prere final of	quisites exam	for taking the	Semi	ina	r work delivere	ed and a	approved			
20.	Langu	lage		Engl	ish						
21.	Cours	se evalu	ation	Stud	ent	questionnaire					
22.	Textb	ooks				-					
		Instru	ction materials								
		No.	Author		T	itle		Publisher	Year		
		1.	Siauw T., Bayen A	<u>.</u>	A	n Introduction	to	Academic	2014		
					M	IATLAB	1	Press	2011		
	22.1.				PI N	umerical Meth	na 10ds				
		2	Trarecourt II II.a.		to D	or Engineers	ПАГ	A BBBBBBBBBBBBB	2010		
		Ζ.	Гунески н., цела Е.	коска	эска Вовед во МАТЈ.		ЛАБ	Авторот	2010		
		3.									
		Suppl	emental Instruction	Materia	als						
		No.	Author		T	itle		Publisher	Year		
	22.2.	1.									
		2.									
		3.									
1	1	1	1		1			1			

Add	I. 3 Course program fo	Course program for the second level (second cycle - postgraduate) of studies			
1.	Course title	Management of technology			
2.	Code	2LEAN02			
3.	Study group(s)	Modeling and Simulation of Plastic Deformation			

4.	The org institute	anizer , depa	of the study program (un rtment)	it,	"S Fa	Ss. Cyril and Maculty of Mecha	etho nica	dius" Unive 1 Engineeri	ersity ng - S	⁷ in S Skopj	kopje, je
5.	Level (f	irst. se	econd. third degree)		Se	econd					
6.	Academ	nic yea	r / semester		I/v su	winter and Immer	7.	ECTS cre	dits		6
8.	Professo	or			A	ssistant professo	or Bo	jan Jovano	ski		
9.	Prerequ	isites f	for enrolling the course		N	one					
10.	Course Acquiri and nor essentia situation skills ar	object ng kno n-prodi 1 capa n in or nd kno	ives (competences): owledge about the manag uction organizations. Kno bilities and dangers of de ganizations and identify p wledge and organizationa	emen owled evelop proble l cultu	it c lge pin em ure	of technological related to the g disabilities. C s related to phy c.	and dev Cond rsica	l innovatior elopment a luct a proce l systems, r	ns in nd n ess of nana	the p urturi f anal geria	oroduction ing of the lyzing the l systems,
11.	Course Develop organiz manage Key ab activitie tools. E	content ational ment ilities es. Join xperin	t: of technologies, manag l management (mission of technology developme and dangers (essential a nt problem solving, imple nenting and generating pro	gemen , vis ent (d abilitio ementa ototyp	nt sion lec es, ati	and manageme n, culture, po ision-making an , essential rigid on and integration , importing kno	ent litics reas, lities ion o wleo	of technolo s). Strateg potentials, s). Manager of new tech dge from th	ogies ic a por ment nical e out	. Ele spect tfolio of i proc side.	ements of s of the -method). nnovative cesses and
12.	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 =	180	hours			
14.	Hours a	<u>llocati</u>	on per activity:	30+30+30+30+60=180 hours					20.1		
15.	Lecture	s/Lab	·	15.1.	•	Lectures (15 w	eeks	x 2)			30 hours
16	Project	Work	Assignments	$\frac{13.2}{16.1}$	Project assignments			2			30 hours
10.	Tiojeet	WOIK/	7 issignments	10.11				5			50 110013
				16.2.	2. Individual assignments			ents			30 hours
				16.3		Self-study					60 hours
17.	Points/N	Aarks:									
	17.1.	E	zams								50 %
	17.2.	Р	rojects								50 %
	17.3.	A	Attendance								
18.	Grading	g scale				unde	r 50	%		4	5 (five) (F)
	-					51	l-64	%			6(six)(D)
						65	5-74	%		7 (seven) (C)
				_		75	5-84	%	~	8(eight) (B-)
				_		83	5-94	%	9	(nin)	e) (A - /B +)
10	Dronom	isitas 4	For taking the final aver		C -	-95 minor work dat	100	70 ad and anot		10 (te	en) (A/A+)
19.	Lanana				50	naliah/Maaadam		eu anu appi	ovec	l	
20.	Course	gc	tion			ugiisii/iviacedon					
21.					ડા	udent questionr	aire				
22.		DKS									
	22.1	Instru	action materials							r	
		No.	Author			Title		Publishe	r		Year

	1.	Robert Burgelman, Clayton Christensen, Steven Wheelwright	Strategic Management of Technology and Innovation	McGraw- Hill, New York	2008
	2.	Robert Johnston, Stuart Chambers, Christine Harland, Alan Harrison and Nigel Slack	Cases in operations management	Pearson Education Limited	2003
	3.				
22.2	Supp	lemental Instruction Materials			
	No.	Author	Title	Publisher	Year
	1.	D. Jovanoski	Translated parts from the book Менаџмент на технолошки развој	Faculty of Mechanical engineering	2013

Add	1. 3	Course program for the see	cond level (second cycle - postgraduate) of studies						
1.	Course title	8	Design of Quality Management Systems						
2.	Code		2LM07						
3.	Study grou	ip(s)	IIM						
4.	The organi	zer of the study program	"Ss. Cyril and	M	ethodius" Universi	ity in			
	(unit, insti	tute, department)	Skopje, Faculty of Mechanical Engineering -						
			Skopje						
5.	Level (first	t, second, third degree)	Second						
6.	Academic	year / semester	I/summer	7.	ECTS credits	6			
8.	Professor		Prof. PhD Rober	t Mi	novski				
9.	Prerequisit	es for enrolling the course	None						
10.	Course obj	ectives (competences):							
	Understand	ling the need for implementat	tion of the standa	rd I	SO 9001, being ca	upable for			
	analysis an	d/or practical implementation o	f parts of the stand	lard.					
11.	Course con	ntent:							
	Family of	standards ISO 9000. Requirer	ments of the stand	dard	ISO 9001. Prerequ	uisites for			
	successful	implementation of ISO 9001.	Implementation p	roces	ss of ISO 9001. WI	hat comes			
	after impl	lementation of ISO 9001 -	- integrating ISC) 9	001 and Lean.	Practical			
	analysis/in	plementation of ISO 9001.							
12.	Study meth	nods:							
	Interactive	lectures, team work (if applica	ble) project assign	men	ts				
13.	Total hours	5	6 ECTS x 30 =	= 180) hours				

14.	Hours allocation per activity:				30+30+30+30+60=180 hours					
15.	Lecture	s/Lab		15.1	. Lectures (15 wee	eks x 2)	30 hours			
				15.2	. Lab (student wor	rk)	30 hours			
16.	Project	Work	x/Assignments	16.1	. Project assignme	ents	30 hours			
				16.2	. Individual assign	nments	30 hours			
				16.3	. Self-study		60 hours			
17.	Points/1	Marks	•							
	17.1.	I	Exams				60 %			
	17.2.	I	Projects				30 %			
	17.3.	ŀ	Attendance				10 %			
18.	Grading	g scale	e		under 5	50 %	5 (five) (F)			
					51-6	64 %	6 (six) (D)			
				_	65-7	74 %	7 (seven) (C)			
				_	75-8	34 %	8 (eight) (B-)			
				_	85-9	94 %	9 (nine) (A - /B +)			
10	Drereal	icites	for taking the final evan	2	93-10 Seminar work deliv	JU 70 vered and ann	10 (ten) (A/A+			
$\frac{1}{20}$	Language English					vered and app	noveu			
20.	Course	ge	ation		Student questionnaire					
21.	Tartha				Student questionna					
22.		OKS								
	22.1	Instr	uction materials			<u> </u>				
		No.	Author		Title	Publishe	r Year			
		1.	/		Contemporary	/	/			
					materials					
					(presentations,					
					OMS and Lean					
		2.	n.n.		Quality	Internationa	1 2015			
					management	Organization	n			
					systems -	for				
					Requirements	Standardizat	tion			
					(ISO 9001:2015)					
		3.								
	22.2	Supr	l olemental Instruction Ma	terials	5					
		No.	Author		Title	Publisher	Year			
		1	Micklewright Mike		Lean ISO 9001	American	2010			
		1.			Adding Spark to	Society for	2010			
					your ISO 9001	Quality.				
					QMS and	Quality Pre	ess			
					Sustainability to					
					your Lean Efforts					

17. List of the teaching staff, including the data stated in Article 5 of the Rulebook on the Mandatory Components of the Study Programmes of the First, Second, and Third Cycle ("Official Gazette of the Republic of Macedonia" No. 25/2011) and the Rulebook on Changes and Amendments of the Rulebook on the Mandatory Components of the Study Programmes of the First, Second, and Third Cycle ("Official Gazette of the Republic of Macedonia" No. 154/2011)

The following professors participate in the realisation of the Modeling and simulation of plastic deformation technologies and processes study programme:

- 1. Professor Atanas Kochov
- 2. Prof. Jasmina Chaloska
- 3. Prof. Valentina Gechevska
- 4. Prof. Gligorche Vrtanoski
- 5. Prof. Zoran Pandilov
- 6. Prof. Robert Minovski
- 7. Prof. Bojan Jovanoski
- 8. Prof. Anita Grozdanov
- 9. Prof. Tatjana Kandikjan
- 10. Prof. Tashko Rizov
- 11. Prof. Ljubomir Drakulevski
- 12. Prof. Radmil Polenakovikj
- 13. Prof. Celakoska Emilija
- 14. Prof. Prangoski Bojan

When needed, teaching staff members from other organisational units (institutes, departments) of the Faculty of Mechanical Engineering in Skopje, as well as from other higher education institutions, take part in the realization of the instruction, pursuant to the legal procedure for election of course programmes and engagement of teaching staff in the instruction process.

The Educational and Scientific Board of the Faculty pays special attention to securing that the provisions of the Law on Higher Education regarding the workload of the teaching staff members are met.

Add. 4	Information about the tea	chers that lectu	re at the first, seco	ond and third study
	program ai	nd are mentors	on the doctoral th	esis
1.	Name (First, Last)	Atanas Kochov	7	
2.	Date of birth	March 8, 1966		
3.	Scientific degree / Title	Doctor of Philo	sophy; Ph.D.	
4.	Title of the scientific degree	Ph.D. in Techn	ical Sciences	
5.	Year and institution of	Education	Year	Institution
	the scientific degree	Ph.D. in	2001	Faculty of Mechanical
		Mechanical		engineering - Skopje
		М.	1994	Faculty of Mechanical
		Sc. in		engineering - Skopje
		Mech		
		B.	1990	Faculty of Mechanical
		Sc. in		engineering - Skopje
		Mech		
6.	Area, field and particular	Area	Field	Specialty

	specia	specialty of master of		of	Technical &	Mechanic		Production engineering,	
	science	e degre	ee		Technology	al		technologies and systems	
					sciences	engineeri		FEA in metal forming	
7.	Area, doctor	field ar al degr	nd area	of	Area	Field		Specialty	
					Technical &	Mechanica		Production engineering	
					Technologic			technologies and systems,	
					al sciences	engineerin		organization of	
						g,		Composite materials	
8	Ifemn	loved	state th	0	Institution	Materials		Title and area	
0.	institu	tion wl	here	C			1		
	he/she	works	and the	Ļ	UKIM, Faculty	of Mechanic	al	Full time professor	
	title ar	nd area	in whi	ch	Engineering			Mechanical	
	is nam	led al eu						engineering	
9.	List of	course	es that t	he teacher	is lecturing sep	arately for fir	st, sec	ond and third cycle	
	List of courses that th			es that the	e teacher 1s lectur	ring in the first	st cyc	e	
		No.	1	Course			Stud	y program/institution	
			1.	Manager	ment of technolo	ogy ·	Indu	strial engineering and	
			2.	Compute	er alded engineering		Production engineering		
	0.1		<u>3.</u>	Producti	on processes	tatanin a	Mec	Techanical engineering	
	9.1.		4.	2D on gir	ogy of rapid pro	lotyping	Drod	nanical engineering	
			<u>5.</u> 6	JD engli	agy of composite	20	Prod	uction engineering	
			<u>0.</u> 7	Technol	ogy of composite	zs ning	Prod	uction engineering	
			<u>7.</u> 8	Modelin	σ of injection matrix	olding tools	Prod	uction engineering	
			9	Compute	er aided design o	of metal	Prod	uction engineering	
		List o	of cours	es that the	e teacher is lectur	ring in the sec	cond c	zvele	
		No.		Course		8	Stud	y program/institution	
			1.	Manager	ement of technology		Industrial engineering and		
			2.	Sustainable development		Product life cycle management			
			3.	Cleaner	leaner production		Metrology		
	0.2		4.	Modelin	g and simulation	n of plastic	Prod	uction engineering	
	9.2.		5.	Concurr	ent engineering		Industrial engineering and		
			6	Finite El	ement Analysis	in	Prod	uction engineering	
			0.	engineer	ing practices				
			7	Sustaina	ble production a	nd	Indu	strial engineering and	
			<i>,</i> .	consum	otion		man	management	
			8.	Eco-inno	ovation	_	Mod	eling and simulation of	
		List o	of cours	es that the	e teacher is lectur	ring in the thi	rd cyc	ele (in the second s	
		No.	Course	e	1 .		Stud	y program/institution	
		<u> </u>	Sustan	nable dev	elopment		Indu	strial engineering and	
		2.	Manag	gement of	Technology		Indu	strial engineering and	
	9.3.		Theor	uion	city and		Prod	uction engineering	
	_	2	evnor	y or prasti	alveis of motal		1100	uction engineering	
		5.	formir	nontal all	arysis ur metal				
			Advar	ig process	uter aided techni	ics	Prod	liction engineering	
		4.	in prod	duction sy	stems	100	1100		

	Selected work in the past five years					
	10.1.	Rele	vant scientific prin	nted paper (up to 5)		
		No	Author	Title	Publisher/year	
			A Kochov	Expert system for mold	International Journal for	
		1.	Ω Tuteski etc	quotation,	Technology of plasticity,	
			O. Tuteski, etc		Vol 40, Number 1, 2015	
				Mold design and production	International scientific	
		2.	A. Kochov,	by using additive	journal "Industry 4.0", Sofia,	
			O. Tuteskı	manufacturing (AM) – present	Bulgaria, August 2018	
			A TZ 1	status and future perspectives	A 1 (1	
			A. Kocnov,	indicators for creating natural	An enlargement and Integration action EU	
		3.	D. Mladenovska	as supply policies WBC's	Commission IBC Vienna	
			WHAUCHOVSKA	gas suppry policies-whee s	Austria December 2015	
				Technology innovation for	International conference on	
				transition to low carbon	Energy, Renewables &	
		4.	A.Kochov	economy: Path to	Sustainability. Baku	
				sustainability	Azerbaijan, April, 2016	
				Definition of indicators for	Journal Energetika,	
			A. Kochov, F. Osmani	decision-making to contribute	Lithuania, November 2018	
		5		to sustainable development		
		5.		through Cleaner Production		
				and Resource efficiency by		
				using AHP methodology		
			A.Kocov.	Analysis of the geometrical	International Journal for	
10.		6.	Tuteski O.,	parameters and factors which	Technology of plasticity,	
			Spiroski Z	form of the mold	vo. 39, Number 2, 2014	
			-			
		7.	S.Cvetkov,	Production of complex parts	International Journal for	
			A.Kocov:	deformation analysis	Vol. 37 Number 1, 2012	
				Stress state in the process of	International Journal for	
			S Cvetkov	deen drawing of sheet metal	Technology of plasticity	
		8.	A.Kocov. Z.	cover as a part of a clutch	Vol. 37. Number 2. 2012	
		_	Spiroski:	cover for commercial motor		
			1	vehicles,		
			Cyetkov S	Experimental analysis for	International Journal for	
		9.	A Kochov	defining forming limit	Technology of plasticity,	
			A.RUCHUV.	diagram for thick sheets	Vo. 39, Number 2, 2014	
			S.Cvetkov.	Experimental analysis for	Journal for Technology of	
		10	A.Kochov:	defining the curves of limit	Plasticity, Vol. 40-2015/1,	
				diagram for thick sheet metal		
				Challenges and opportunities	book of Abstracts, published	
		11	A.Kochov,	transfor and	University Exculty of	
		11.	L. Drakulevski	Innovation in Western Balkan	Economics- Skonie 2017	
				Countries	Zeonomies Skopje, 2017	
			I.Lazarev.	Metal matrix composites as	Acta Technica Corviniensis.	
			K.Kuzman,	tool material for deep drawing	Tome V, Fascicule 3,	
		12.	J.Mickovski,	process,	September, 2012, ISSN	
			J.Lazarev,		2067-3809	
			J.Chaloska,			

		A.Kochov:		
	Par	ticipation in scient	ific national and international pro	jects
	No	Authors	Title	Publisher/Year
	1.	A.Kochov, etc.:	PRODE, Rapid prototyping technologies for sustainable development	University Donja Gorica, Podgorica, Montengero, World Bank project 2012- 2017
	2.	A.Kochov, & others:	Low carbon technologies in SME's	UNIDO, 2012-2015, UEMCD
10.2	· 3.	A.Kochov	LC economy in agro bussiness sector	2010-2013
	4.	A.Kocov (coordinator), P.Schwager	National Cleaner Production Technologies; UNIDO project	2007-2012
	5.	A.Kochov, etc	Chemical leasing – business model for WB	UNIDO, 2015-2018
	6.	A.Kochov etc.	Smart Specialization Strategy	EU & Macedonian Ministry for Education and Science, 2018
	Pri	nted books in past 5	5 years	
	No	Authors	Title	Publisher/Year
	1.	Атанас Кочов Atanas Kochov	Tехнологија на брзи прототипови, модели и алати Rapid prototyping, models and tools	УКИМ, 2015 UKIM, 2015
10.3	. 2.	C. Kefol, M. Tekavcic, Lj.Drakulevski, A.Kochov:	Comparison of Telecommunications development patterns in China and the Republic of Macedonia, China- Central and Eastern Europe, Cross- Cultural Dialogue, Society, Business and Education in Transition,	Jagiellonian University Press, 2015
	3.	А.Кочов A.Kochov	Производни технологии, интерна скрипта Production technologies, internal script	МФС, 2012 MFS, 2012
	4.	Daniela Mladenovska & Atanas Kochov	Chapter 12: Assessment of Alternatives for Natural Gas 171 Supply in Macedonia versus Technical Indicators	© University of Maribor Press Advances in Production and Industrial Engineering: Scientific Monograph
	5.	Ognen Tuteski & Atanas Kochov	Chapter 9: Design Guidelines in Developing a Prototype 135 using Additive Manufacturing Methods	© University of Maribor Press Advances in Production and Industrial Engineering: Scientific Monograph

Printed papers Publisher/year No Authors Title Publisher/year 1. A. Kochov etc. National Cleaner Production Center Maccdonia, Assesment for ceaner production technologies in Macedonian 2007/2012 2. A. Kochov etc. Creating markets for research results Milocher Development Forum, Przno, Montenegro, 2014 10.4. 3. A. Kochov Low Carbon technologies in Macedonian SME's from agro bussiness sector 2011- 2013 10.4. 4. A. Kochov Low Carbon technologies in Macedonia, WIPO Inter regional TIO meeting, Working together on Academic IP Commercialization in the region, Metropolitan University Prague, Prague, Czech Republic, September 2016 5. A. Kochov Indicators for sustainable development of the company TeTo Skopic, feasibility study December 2014 11. Supervision (mentorship) of undergraduate, master and doctoral studies students 11.1. 11.1. Undergraduate Over 30 candidates 11.2. Master Over 30 candidates 11.3. Dotoral Title Publisher/year 12.1 D. Gechevski, A. Kochov Reverse logistics and green logistics way to improving the environmental sustainability 3809 Intern			6.	Atanas Kochov, Daniela Mladenovska	Energy Scena Europe: A clos Western Balkar	rios for SE e look into the ns.	Proceedings of the Enlargement and Integration Actiion Workshop, JRC, Vienna, 2016 (pp.38-39). Editor JRC EU	
No Authors Title Publisher/year 1. A. Kochov etc. National Cleaner Production Center Macedonia, Assessment for ceaner production SME's 2007/2012 2. A. Kochov Creating markets for research source Milocher Development Forum, Przno, Montenegro, 2014 10.4. 3. A. Kochov Creating markets for research macedonia, SME's Subject State Milocher Development Forum, Przno, Montenegro, 2014 10.4. 4. A. Kochov Low Carbon technologies in Macedonia, MIPO Inter regional TIO meeting, Working together on Academic IP Commercialization in the region, Metropolitan University Principlex, seas of University, Prague, Prague, Czech Republic, September 2016 11. Supervision (mentorship) of undergraduate I1.1. Indicators for sustainable development of the company ToTo Skopie, feasibility study December 2014 11. Supervision (mentorship) of undergraduate, master and doctoral studies students I1.1. Indicators for sustainable development of the company ToTo Skopie, feasibility study Isra, Italy, JRC, 2017 11. Supervision (mentorship) of undergraduate, master and doctoral studies students I1.1. Over 30 candidates 11.2. Master Over 30 candidates Tormo of printed scientific papers in international scientific journals or international publicatons in the related field (up to 6)			Prin	ted papers				
1. A. Kochov etc. National Cleaner Production Center Macedonia, Assesment for cener production technologies in Macedonian SME's 2007/2012 2. A. Kochov etc. Creating markets for research results Milocher Development Forum, Przno, Montenegro, 2014 3. A. Kochov Low Carbon technologies in Macedonian SME's from agro busisness sector 2011-2013 10.4. 4. A. Kochov Technology transfer princliples, case of Macedonia, WIPO Inter regional, WIPO Inter regional, WIPO Inter regional, WIPO Inter region, Metropolitan University Prague and Charles University, Prague, Prague, Czech Republic, September 2016 5. A. Kochov Indicators for sustainable development of the company TeTo Skopje, feasibility study December 2014 11. Supervision (mentorship) of undergraduate 11.2. Over 30 candidates Ispra, Italy, JRC, 2017 11. Supervision (mentorship) of undergraduate 11.2. Over 30 candidates Acta Cehnica Terastropers in international scientific journals or international publications in the related field (up to 6) in the past five years 12.1. Defechevski, A.Kochov Title Publisher/year Acta Technica Corvinensis, selected work for the last fuer / five years 12.1. Defechevski, A.Kochov Title Publisher/year Acta Technica Corviniensis, selected work for the last five years <td></td> <td></td> <td>No</td> <td>Authors</td> <td>Title</td> <td></td> <td>Publisher/year</td>			No	Authors	Title		Publisher/year	
Image: Second			1.	A. Kochov etc.	National Cleane Center Macedor for ceaner produ- technologies in SME's	er Production nia, Assesment uction Macedonian	2007/2012	
10.4. 3. A. Kochov Low Carbon technologies in Macedonian SME's from agro bussiness sector 2011-2013 10.4. A. Kochov Technology transfer princliples, case of Macedonia, WIPO Inter Metropolitan University Prague and Charles University, Prague, Prague, Czech Republic, September 2016 4. A. Kochov Technology transfer princliples, case of Macedonia, WIPO Inter Metropolitan University Prague and Charles University, Prague, Prague, Czech Republic, September 2016 5. A. Kochov Indicators for sustainable development of the company TcTo Skopje, feasibility study December 2014 6. A. Kochov Proof of concept in Macedonian SME's Ispra, Italy, JRC, 2017 11. Supervision (mentorship) of undergraduate 11.2. Over 25 candidates 11.1. Undergraduate Over 25 candidates 11.2. Master Over 30 candidates 11.3. Dotoral 7 candidates 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 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 12.1 Proof of printed scientific papers in international scientific particular (a.Kochov 12.1 Proof of printed scientific papers in international publications in the related field (up to 6) in	10.		2.	A. Kochov	Creating marke results	ts for research	Milocher Development Forum, Przno, Montenegro, 2014	
10.11 Technology transfer princliples, case of Macedonia, WIPO Inter regional TTO meeting, Working together on Academic IP Commercialization in the region, Materpublic, September 2016 5. A. Kochov Indicators for sustainable development of the company TeTo Skopie, feasibility study December 2014 11. Supervision (mentorship) of undergraduate I1.1. Undergraduate Undergraduate December 2014 11. Supervision (mentorship) of undergraduate I1.2. Over 25 candidates Ispra, Italy, JRC, 2017 11. Undergraduate Over 25 candidates Indicators for sustainable development of the last four / five years 12. Master Over 30 candidates International scientific journals or international publications in the related field (up to 6) in the past 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 Tome IX, Fascicule 1, January, 2016, ISSN 2067- 3809 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 Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067- 3809 12.1. Proof of printed scientific papers in international publications in the related field (up to 6) in the past five years Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-		10.4	3.	A. Kochov	Low Carbon tec Macedonian SN bussiness sector	chnologies in /IE's from agro r	2011-2013	
Indicators for sustainable development of the company TeTo Skopje, feasibility study December 2014 6. A. Kochov Proof of concept in Macedonian SME's Ispra, Italy, JRC, 2017 11. Supervision (mentorship) of undergraduate, master and doctoral studies students Ispra, Italy, JRC, 2017 11. Undergraduate Over 25 candidates 11.2. Master Over 30 candidates 11.3. Dotoral 7 candidates 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 Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 12. 2. F.Osmani, A.Kochov The importance of the teamwork in managing engineering projects with energy profiles International 3. F.Osmani, A.Kochov The Sustainable supply of thermal energy, planning and Multidisciplinary scientific		10.4.	4.	A. Kochov	Technology tran princliples, case Macedonia, WI regional TTO n Working togeth Academic IP Commercializat region,	nsfer e of PO Inter neeting, ner on tion in the	Metropolitan University Prague and Charles University, Prague, Prague, Czech Republic, September 2016	
6. A. Kochov Proof of concept in Macedonian SME's Ispra, Italy, JRC, 2017 11. Supervision (mentorship) of undergraduate, master and doctoral studies students 11.1. Undergraduate Over 25 candidates 11.2. Master Over 30 candidates 11.3. Dotoral 7 candidates 11.3. Dotoral 7 candidates 7 candidates 7 candidates 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 Publisher/year 12.1. Proof of printed scientific papers in international scientific Geo Conviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 12. D.Gechevski, A.Kochov Reverse logistics and green logistics way to improving the environmental sustainability International Multidisciplinary Scientific Geo Conference SGEM 2016, ISSN 2067-3809 12. P.Osmani, A.Kochov The importance of the teamwork in managing engineering projects with energy profiles International Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016 3. F.Osmani, A.Kochov The Sustainable supply of thermal energy. planning and thermational Multidisciplinary scientific			5.	A. Kochov	Indicators for sustainable development of the company TeTo Skopje, feasibility study		December 2014	
11. Supervision (mentorship) of undergraduate, master and doctoral studies students 11.1. Undergraduate Over 25 candidates 11.2. Master Over 30 candidates 11.3. Dotoral 7 candidates 11.1. Proof of printed scientific papers in international scientific journals or international publications in the related field (up to 6) in the past five years 12.1. 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 Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 12. D.Gechevski, A.Kochov Reverse logistics and green logistics way to improving the environmental sustainability Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 12. P.Osmani, A.Kochov The importance of the teamwork in managing engineering projects with energy profiles International Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016 3. F.Osmani, A.Kochoy The Sustainable supply of thermat energy, planning and Multidisciplinary scientific			6.	A. Kochov	Proof of concep Macedonian SN	ot in ⁄IE's	Ispra, Italy, JRC, 2017	
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11.2. Master Over 30 candidates 11.3. Dotoral 7 candidates 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 publications in the related field (up to 6) in the past five years 9 No Authors Title Publisher/year Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 10 12. Prostanni, A.Kochov The importance of the teamwork in managing engineering projects with energy profiles International Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016 3. F.Osmani, A.Kochoy The Sustainable supply of thermal energy, planning and Multidisciplinary scientific		11.1.	Unde	ergraduate	Over 25 candida		ates	
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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 Publisher/year No Authors Title Publisher/year 1. D.Gechevski, A.Kochov Reverse logistics and green logistics way to improving the environmental sustainability Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067-3809 12. P.Osmani, A.Kochov The importance of the teamwork in managing engineering projects with energy profiles International Multidisciplinary Scientific Geo Conference SGEM 2016, BOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016 3. F.Osmani, A.Kochoy The Sustainable supply of thermal energy, planning and Multidisciplinary scientific		For me	ntors	of doctoral thesis,	selected work fo	or the last four / f	ive years	
NoAuthorsTitlePublisher/year1.D.Gechevski, A.KochovReverse logistics and green logistics way to improving the environmental sustainabilityActa Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067- 380912.2.F.Osmani, A.KochovThe importance of the teamwork in managing engineering projects with energy profilesInternational Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 20163.F.Osmani, A.KochovThe Sustainable supply of thermal energy, planning and Multidisciplinary scientific		12.1.	Proo	or or printed scient	inc papers in interview to field (up to f	ernational scienti	The journals or international	
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12.ProblemF.Osmani, A.KochovThe importance of the teamwork in managing engineering projects with energy profilesInternational Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 20163.F.Osmani, A.KochoyThe Sustainable supply of thermal energy, planning andInternational Multidisciplinary scientific			1.	AuthorsTitleD.Gechevski, A.KochovReverse logistic logistics way to environmental s		es and green improving the sustainability	Publisher/year Acta Technica Corviniensis, Tome IX, Fascicule 1, January, 2016, ISSN 2067- 3809	
3. A.Kochov I ne Sustainable supply of 1/ International thermal energy, planning and Multidisciplinary scientific	12.		2.	F.Osmani, A.Kochov	The importance teamwork in ma engineering pro energy profiles	of the anaging jects with	International Multidisciplinary Scientific Geo Conference SGEM 2016, DOI:10.5593/SGEM2016/B 42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016	
			3.	r.Osmani, A.Kochov	thermal energy	supply of planning and	Multidisciplinary scientific	

					decision making by using analytic hierarchy process	5	Geo Conferen 2017, proceec Ecology, econ education and issue 53, 2017	nce SGEM lings, Vol 17 th ; nomics, l legislation, 7
		4.	Kocov Tuteski Spirosk	A , O., ti Z	Expert system for mold quotation,		International Journal for Technology of plasticity, Vol 40, Number 1, 2015	
	5. Atanas Kočov, Taško Rizov		New product design development based on additive manufacturing & rapid Prototyping methodology		International Journal for Technology of plasticity, Vol 40, Number 2, 2015			
		6.	Atanas Kochov Ognen Zoran S	v Tuteski Spiroski	Analysis of the geometric parameters and factors wl define the complexity and form of the mold	al nich l the	Journal for Te Plasticity, Vo	echnology of 1. 39-2014/2
		7.	S.Cvetł A. Koc	kov, hov	Experimental analysis for defining the curves of limit diagram for thick sheet metal, part 2, Stress state in the process of		Journal for Technology of Plasticity, Vol. 39-2014/2	
		8.	Slavco Cvetko Atanas Kochov Spirosk	v, v, Zoran ii	Stress state in the process of deep drawing of sheet metal cover as a part of a clutch cover for commercial motor vehicles		Journal for Technology of Plasticity, Vol. 37-2012/2	
		9.	S.Cvetl A.Kocl	(OV 10V	Production of complex pa by deep drawing - deformation analysis	urts	Journal for Technology of Plasticity, Vol. 37-2012/1	
		10.	N.Korn A.Kocł	nushska, 10v etc.	Complementary and Overlapping among Energy Performance Indicators as of the Sustainable Development and RECP Indicators in Cement Indu	gy s Part 1strv	International Contemporar Vol. 1, No. 1 ISSN 2363-64	Journal of y ENERGY, , pp 20 – 26, 140, 2015.
	12.2.	Proo	of of at le	ast two p	rinted scientific papers in i	nternat	ional scientific	journals that
		nave No	Author	s s	Title	nve y	ears Publisher/Yea	ır
		1.						
	12.2	<u> </u>	f of ot lo	act thread	intomotional mastings, nor	ticimoti	on in the next	follow Moore
No	12.3. Author	<u>F100</u>	i oi at le	Title	memanonal meetings par	Inter	national	Vear
110.	1 1001			1100		confe	erence	
1. Kochov A., Mladenovska D.,		a D.,	Identification of technical indicators for creating natural gas supply policies – Balkan case		Invite the E Com & the Com Secre Work	ed lecture for Juropean mission JRC e Energy munity etariat Joint cshop on	15 Dec, 2015	
						Energ	gy Scenarios	

			for South Eastern	
			Europe, Vienna	
		Identification of technical	Industrial Energy	June, 2015
		indicators for creating natural gas	and	,
		supply policies – Macedonian	Environmental	
2.	D. Mladenovska,	case	Protection in	
	A. Kochov:		Southeast Europe.	
			IEEP. Zlatibor.	
			Serbia.	
		Case study – the importance and	XII-371 ISSN	May 26-27
		the impact of the cogeneration	1822-7554 the	2016
		project in reducing atmospheric	13 th International	2010
	F Osmani	emissions in the city of Prishting	conference of	
3.	A Kochov	emissions in the erty of i fishtina,	voung scientists	
	A.KUCHUV.		on energy issues	
			Kounas	
			Lithuania	
		Complementarity and overlapping	5 th International	Son 2015
	A M Lozorovsko	complementarity and overlapping	5 International	Sep 2015
	N. Dolarogla	indicators as part of the	DEMOO 2015	
4.	N.Dakreska-	indicators as part of the	REMOU 2013,	
	Kormusnoska,	DECD in disators in account	Budva,	
	A.Kocnov:	RECP indicators in cement	Montenegro,	
		Industry,	cth T () 1	G 2015
		Multi Criteria Assessment of	5 International	Sep 2015
	A.M.Lazarevska.	natural gas supply options – the	conference	
5.	D.Mladenovska,	Macedonian case,	REMOU 2015,	
	A.Kochov:		Budva,	
			Montenegro,	
			September 2015	D (201(
		Challenges for food processing	International	Dec 6, 2016
		industry: New innovations &	Conference on	
		Ecosystems",	Technology	
<i>c</i>			innovation in food	
6.	A. Kochov:		processing	
			industry, IQS &	
			DNV.GL-	
			Croatia, Skopje,	
			Macedonia,	10.00 1 11
		Determination of indicators for	JUMV the 26	19-20 April
		sustainable introduction of	th International	2017
		electric vehicles based on	Automotive	
7.	S.Kjosevski,	transportation system structure	Conterence	
	A.Kochov etc.		SCIENCE	
			AND MOTOR	
			VEHICLES in	
			Belgrade	
8.	S. Kjosevski,	Risks and safety issues related to	MTM_Borovets_	May 2017
0.	A. Kochov etc.	use of electric and hybrid vehicles	Bulgaria_2017	

		Sustainable development of road	1st International	SKOPJE,
		transport through	Conference	UMT, 2018
		Introduction of electric vehicles –	towards	
		initial study for	sustainable	
		Developing regions	development	
			(TSD 2017)	
9.	S. Kjosevski,		Sustainable	
	A. Kochov		development in	
			Western Balkans:	
			approaches, short-	
			comings and	
			challenges; Book	
			of abstracts 1st	
			Conference	
		MCDM for defining indicators	Humboldt	Sep 2018
10	S. Kjosevski,	for implementing e-vehicles in	Kollege,	
10.	A. Kochov	WBC's for environmental	Belgrade, Serbia	
		sustainability		

Add	d. 4	Information abo	ut the teachers that le	ut the teachers that lecture at the first, second and third				
1		st	udy program and an	re mentors	on the d	octoral thesis		
1.	Name (Fi	irst, Last)	Kadmii Polenakovikj					
2.	Date of b	irth	March 14, 1967					
3.	Scientific	degree / litle	Ph.D.	•				
4.	Title of the	he scientific degree	Ph.D. in Technical S	ciences		.		
5.	Year and	institution of	Education	Year		Institution		
	the scient	tific degree	Ph.D in	2001		Faculty of		
			Mechanical			Mechanical		
			Engineering			engineering - Skopje		
			M. Sc. in	1994		Faculty of		
			Mechanical			Mechanical		
			Engineerin			engineering - Skopje		
			B. Sc. in	1992		Faculty of		
			Mechanical			Mechanical		
			Engineerin			engineering - Skopje		
6.	Area, fiel	d and particular	Area	Field		Specialty		
	specialty	of master of	Technical sciences	Mechanic	al	Human Resources		
	science d	egree		engineerin	ng	Management		
7.	Area, fiel	d and area of	Area	Field		Specialty		
	doctoral of	degree	Technical sciences	Mechanic	al	Management		
				engineerii	ng			
8.	If employ	ved, state the	Institution		Title and	l area		
	institution where		UKIM, Faculty of		Full tim	e professor		
	he/she works and the		Mechanical Engineer	ring	Industria	al Engineering		
	title and area in which				and Management			
	is named					<u> </u>		
9.	List of co	ourses that the teacher	r is lecturing separately	y for first, s	econd and	l third cycle		
	9.1. Li	st of courses that the	teacher is lecturing in	the first cy	cle			

		No.	Course		Study program/institution			
		1.	Entrepreneurship and small		All majors / Mechani	cal Faculty, UKIM		
		2.	Human Resources managem	nent	IEM, MF, UKIM			
		3.	Logistics and Supply Chain		IEM, MF, UKIM			
			Management					
		4. Organizational Behavior IEM, MF, UKIM						
	9.2.	List o	of courses that the teacher is le	cturing	in the second cycle			
		No.	Course		Study program/institu	ition		
		1.	Methods and techniques in		IEM, MF, UKIM			
			maintenance					
		2.	Project Cycle Management		IEM, MF, UKIM			
		3.	Human Resources Developr	nent	IEM, MF, UKIM			
		4.	Logistics and Supply Chain		IEM, MF, UKIM			
			Management					
		5.	Ergonomics		ISPPI, UKIM			
	9.3.	List o	of courses that the teacher is le	cturing i	in the third cycle			
		No.	Course		Study program/institu	ition		
		1.	Human Resources Developr	nent	IEM, UKIM			
		2.	Entrepreneurship and		IEM, UKIM			
			innovation Management					
10.	Select	ed wor	k in the past five years					
	10.1.	Relev	vant scientific printed paper (up	p to 5)				
		No.	Author	Title		Publisher/year		
		1.	Polenakovikj R., Sutevski D.	Entrep	reneurial Learning	ETF & MON, 2014		
				Strateg	y of Republic of			
				Maced	onia 2014 – 2020			
		2	P. Polenskovik	Duildi	ng on Innovation	UNCTAD Multi yoor		
		2.		Society	ing an innovation	Expert Meeting on		
				Repub	y – Case of the	Investment		
				Repub		Innovation and		
						Entrepreneurship for		
						Productive Canacity-		
						building and		
						Sustainable		
						Development, 19 – 21		
						March 2014, Palais		
						des Nations. Geneva		
		2	T. Fiti. D. Dolonolyovilri (ot	Drease	dince from the	MANULand		
		5.	1. FILI, K. FOIEIIAKOVIKJ (EL	Confer	conigs from the	NCCDIEL print		
				increas	a employability rate	Skopio 2014		
				among students and recent		Skopje 2014		
		4	Polenakoviki R et al	Develo	onment of National	NCDIEL print Skopie		
		· · ·	i oronako vikjik, et al.	Cluster	r	2017		
				Cturt.				
				Strateg	gy for Kepublic of			
				Maced	onia 2018 – 2025			

	5.	Lazarevska T, Polenakovikj R, et al	Entrepreneurship in the Republic of Macedonia (GEM 2012 report for Macedonia)	MRFP, Skopje December 2018
10.2.	Partic	pipation in scientific national a	o 5)	
	No.	Author	Title	Publisher/year
	1.	Polenakovikj R, et al.	"ECO-SystemApp: System Approaches for Entrepreneurial Ecosystem Training "ERASMUS+ KA 2: Strategic Partnerships	2015 – 2017, EU funded
	2.	Polenakovikj R, et al.	CRAYON (Creativity in Action to promote Young Entrepreneurship) ERASMUS+ KA2: Strategic Partnerships for higher education	2015 – 2017, EU funded
	3.	Polenakovikj R, et al.	Cross Border Cooperation project MK-AL "Innovation Eco-System in the CBC area (CBC INNOV8)	2018 - 2019
10.3.	Printe	ed books in the last five years	(up to 5)	
	No.	Author	Title	Publisher/year
	1.	<u>Polenakovikj R.,</u> Markovska M	Innovation management	NCDIEL print, 2013
	2.	<u>Polenakovikj R.</u> , Sutevski D.	Business and Entrepreneurship (IV grade	NCDIEL print 2017
	3.	<u>Polenakovikj R.</u> , Sutevski D.	Innovation (9 th grade for primary schools)	MON, 2018
	4.	<u>Polenakovikj R.,</u> Penaluna A., et al	How to teach entrepreneurship	NCDIEL print 2015
10.4.	Printe	ed professional papers in the la	ust 5 years (up to 5)	· · · · · · · · · · · · · · · · · · ·
	No.	Author	Title	Publisher/year
	1.	B. Jovanovski, I. Nikoloski, <u>R. Polenakovik</u> , T. Velkovski, E. Ivanovic	Reducing kills mismatch as a key for increasing the regional competitiveness of women entrepreneurship in Southeast Europe	Proceedings of 7 th International Conference for Entrepreneurship, Innovation and Regional Development, ICERID 2014, 5-6 June 2014, Nicosia, Cyprus

		C	D Dalanalaavila A		T E:4: D
		Ζ.	<u>K. Polenakovik</u> , A. Penaluna K. Penaluna	Liosing the gap between	I. Fill, K.
			i charuna, K. i charuna	students/graduates	<u>rolenakovik</u> (aditara): "How to
				students/graduates	(editors). How to
				competences and skins	employment of
					students and
					graduates?
					graduales: Conference
					Proceedings"
					MANU and
					NCDIEL print
					Skopie, 14 March
					2014
		3.	R. Polenakovik	Creativity killers and	Paper prepared for
				boosters - How to be more	the needs of the
				creative?(<u>Don't dream</u>	project: Project
				your life, live your dream)	EU+PIK(a) (EU +
					Entrepreneurship,
					Initiative,
					(542642 LLP 1)
					(342042-LLF-1- 2013_1_SLΔIM_
					ICS) MEDPS
					Celje, Slovenija
		4.	Dimitrovska N., <u>Polenakovikj</u>	Comparative Life Cycle	The International
			<u>R.</u> :	Impact Assessment in	Journal of
				Global Warming Potential	Engineering and
				for Pharmaceutical	Science (IJES),
				Packaging purpose	Volume, 6, Issue 4,
					pp. 24-30, September 2017
		5.	Jovanovski B., Polenakovik	Innovative Approach for	Annals of Faculty of
		-	R., et al.	Facing Roma Exclusion	Engineering
				with Social	Hunedoara –
				Entrepreneurship Trainings	International Journal
					of engineering,
					Tome XVI (2018),
					Fascicule 1
					(February)
11.	Super	vision	(mentorship) of undergraduate	, master and doctoral studies s	tudents
	11.1. 11.2	Maste	igiauuait	Over 50	
	11.2.	Docto	oral	6 finished and 4 in progress	
12.	For me	entors	of doctoral thesis, selected wor	rk for the last four / five years	
	12.1.	Proof	f of printed scientific papers in	international scientific journal	s or
		interr	national publications in the rel	ated field (up to 6) in the past t	five years
		No.	Author	litle	Publisher/year

	1	Naumovska R. I. Chalo	ska Creation of Health	v and Safa	1st Interne	ational
	1.	I Polenakovik R	Wornlages by Use	y unu suje of Software	Conference	e for Safety
		Gechevska V	for Francomics an	d Human	Engineerin	a in
		Occhevska v.	Actors IACK	u mumum	Function	ig in sf
			ACIOIS – JACK		Improvem	ont of the
					Working	Conditions
					working (
					10-12 Ma	y, 2015,
					Onrid, Ma	cedonia
	2.	Stamboliski V., Donev V	V., Improving Organis	ational	IX Interna	tional (May
		<u>Polenakovik R.</u>	Structure in the Af	ter-sales of	2013) Con	ference for
			Vehicles by establi	shing and	Strategic r	nanagement,
			developing Effectiv	ve Teams	24-26 May	y 2013, Hotel
					Albo, Bor	, Serbia
	3.	Gecevska V., Donev V.,	A Review of Envir	onmental	Annals of	Faculty
		<u>Polenakovik R.</u>	Tools Towards Sus	stainable	Engineerin	ng Hunedoara
			Development		– Internati	onal Journal
					of Enginee	ering, Tome
					XIV (2016	6) – Fascicule
					1 (Februar	y)
	4.	Polenakovik R., Gecevs	ka Analysis of the Bu	siness	Methods a	ind
		V., Sutevski D.,	Model's Impact to	the Success	Technique	es for
		Jovanovski R. B.	of Macedonian SM	ſE's	Industrial	Development
					(Scientific	Monograph
					- editors F	ranc Čuš,
					Valentina	Gečevska,
					Fulvia Chi	iampo),
					Maribor: H	Faculty of
					Mechanica	al
					Engineerin	ng, 2015
12.2.	Proof	of at least two printed so	ientific papers in inter	national scien	ntific journ	als that
	have	impact factor in the relat	ted field in the past five	e years	Dublisher	
	1NO.	Author Delenelrevilt D. Dinte D	The Netional Inner	vation	World Iou	/year
	1.	<u>Polenakovik K.</u> , Pinto K	System and its Pol	vation to	World Jou	Imar or
			System and its Kei Small Enterprises	the Case of	ond Sustai	nabla
			the Republic of Me	- life Case of	Developm	ant
				iccuoma	WISTSD) Volume 7
					Number	1/2 2010
	2.	Gecevska V., Donev V.,	Mass Customizatio	on as Aided	Internation	nal Journal of
	2.	Polenakovik R.	Value Tool in New	Product	Innovative	Research in
			Development Proc	ess	Science. F	Ingineering
					and Techn	ology.
					Volume 4	Issue 11.
					November	2015
12.3.	Proof	of at least three internati	onal meetings' particip	oation in the	past four ye	ears
	No.	Author	Title	Internation	al	year
				monting	nforonco	

	1. 2.	G. Stojkov, D. Janevska, <u>R.</u> <u>Polenakovik</u> Sutevski D., <u>Polenakovik R.</u>	Should I stay or should I go: is the leadership style important for the sector where it is performed? 32 sources of organizational changes	Proceedings of 7 th International Conference for Entrepreneurship, Innovation and Proceedings of XI International	2014 2013
				Scientific Conference "Management and Engineering" 13', 23- 26 June 2013, Sozopol, Bulgaria	
	3.	<u>Polenakovik R.,</u> Jovanovski B., Velkovski T.	Developing System of Entrepreneurial Education in Secondary Schools in the Republic of Macedonia	6th International Conference for Entrepreneurship, Innovation, and Regional Development ICEIRD 2013, 20-21 June, 2013, Istanbul, Turkey	2013
	4.	Stamboliski V., Donev V., <u>Polenakovik R.</u>	Improving Organisational Structure in the After- sales of Vehicles by Establishing and Developing Effective Teams	IX International (May 2013) Conference for Strategic management, 24-26 May 2013, Hotel Albo, Bor, Serbia	2013
	5.	Stojkov G., Janevska D., <u>Polenakovik R.</u> :	Facilitation of Transfer of Leaders by Addressing the Differences in Leadership Competences in Private and Public Sectors	15 th International Business & Economy Conference: Sustainability in Business and Economics, Nurtingen - Geislingen University, Nurtingen, January 6- 9, 2016	2016

Add. 4		Information about the teachers that lecture at the first, second and third						
		study program and are mentors on the doctoral thesis						
1.	Name (I	First, Last)	Jasmina Chaloska					
2.	Date of birth		September 3, 1963					
3.	Scientifi	c degree / Title	Ph.D.					
4.	Title of the scientific degree		Ph.D. in Technical Sciences					
5.	Year and institution of		Education	Year	Institution			
	the scie	the scientific degree		Ph.D. in Technical Sciences	1 2002			Faculty of Mechanical engineering – Skopje UKIM
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				M. Sc. in 1993 Mechanical Engineering		1993		Faculty of Mechanical engineering – Skopje UKIM
				B. Sc. in Mechanical Engineering	1987			Faculty of Mechanical engineering – Skopje UKIM
6.	Area, f	ïeld	and particular	Area		Field	· · - 1	Specialty
	specialty of master of science degree			Technical sciences		Mechanical engineering		engineering, technologies and systems
7.	Area, field and area of			Area		Field		Specialty
	Doctor	al de	gree	Technical sciences	Mechanical Pr engineering en teo		ıl g	Production engineering, technologies and systems
8.	If emp	loyed	l, state the	Institution			Title an	d area
	institut he/she title an is name	ion v work d are ed	where as and the a in which	UKIM, Faculty of Mechanical Engineering		Full tim Mechan enginee	e professor iical ring	
9.	List of	cour	rses that the teache	r is lecturing separat	ely i	for first,	second a	nd third cycle
	9.1.	Lis	t of courses that th	e teacher is lecturing	; in	the first o	cycle	
		No	Course		Stu	dy progr	am/instit	ution
		1.	Ergonomics Dusiness informs	tion	Ind	ustrial en	igineering	g and management
		2. 3	Unconventional r	nanufacturing	$\frac{110}{Pro}$	duction e	engineeri	ng
		5.	processes	Inditative carring	110			
		4.	Modeling of plas deformation tool	stic s	Pro	duction e	engineeri	ng
	9.2.	Lis	t of courses that th	e teacher is lecturing	g in '	the secor	nd cycle	
		No	Course		Stu	dy progr	am/instit	ution
	1. Modern technolo and tools			gies of plasticity	Pro	duction e	engineerii	ng
	2. Safety and health		Safety and health	systems	Pro	duct life	cycle ma	inagement
		<u>3</u> .	Protessional risk	management	Ma:	nagemen	t of safet	y and health systems
		4.	plastic deformation	nutation of on technologies	Production engineering			
	9.3.	Lis	t of courses that th	e teacher is lecturing	in i	the third	cvcle	
		No	Course		Stu	dy progr	am/instit	ution

		1.	New materials and modern	n	Mechanical engineer	ring		
			manufacturing processes					
		2.	Safety and risks at work		Industrial engineerin	g and management		
10.	Selected	d w	ork in the past five years					
	10.1.	Re	elevant scientific printed pap	er (up to 5)				
		Ν	Author	Title		Publisher/year		
		1.	T. Pepeljak, J. Chaloska	Process I	Parameteres	International		
				Influencin	ng Deformation	Conference on		
				Work of L	Deep Drawing of a	Innovative		
				Squared I	Box	Technologies IN-		
						TECH 2014, Leiria,		
						Portugal, 10-		
						13.09.2014		
		2.	I. Ajdari, J. Chaloska	Impact of	f sustainable global	XX World Congress on		
				preventio	n strategy for high-	Safety and Health at		
				risk indu	strial sectors-Vision	Work, 24-27 August,		
				Lero		riankiun, Germany,		
		2	L Claster L' Destate	T1	· 1 · C · · · · · · · · · · · · · · · ·	2014		
		3.	J. Chaloska, LJ. Dudeski, T. Valkovaki	The occupe	ational safety expert	International Conference		
				as a basis for implementation and sustainability of OHS		Collaboration Bled		
				ana susian system		Slovenia 10-11 11 2016		
		1	P. Matavaka, I. Chalaska	Model for	afoto increasing	International Conference		
		4.	D. Maievska, J. Chałoska	and risk assessment while		on Innovative		
				working with hazardous		Technologies. IN-TECH		
				chemicals		2017.		
						Ljubljana, Slovenia		
						13-15.09.2017		
		5.	I. Catik, J.Chaloska, D.	Fluid-dep	osition of rocks is	Interdisciplinary		
			Godec, M.Kovacik. A.	natural m	odel for additive	Description of		
			Pilipovik, K. Skala	productio	n	Complex Systems		
						15(3), 180-189,		
						2017 (Web of		
						Science) SCI		
						(Science Citation		
						Index) journals		
	10.2	Р			<u> </u>	$\frac{11-0.10}{5}$		
	10.2.	Pa N	Author	unal and in	ternational projects (u	p w 5) Publisher/voor		
		1 1	I Caloska	Systems f	or	FUREK A project		
		1.	(project	assessmen	nt of	E!4133, 2007-2010		
			coordinator)	surface in	tegrity			
			Plazma.					
			SolarTubes-					
			Macedonia,					
			Gorenje-					

	2.	J Caloska (project coordinator), Arcelor Mittal, Rade Koncar TEP- Macedonia,Gorenje, LIV- Slovenia	Innovative eco-friendly processing of volumetric sheet metal components	EUREKA project, E!5783, 2010-2013
	3.	J. Chaloska member of Macedonian team from University Ss.Cyril and Methodius	Increasing capacities and strengthening the role of regional CSOs for improving labor conditions and labor dialogue with public institutions	International project financed by EU 2016- 2019
10.3.	Pr	inted books in the last five y	rears (up to 5)	1
	Ν	Author	Title	Publisher/year
	1.	R. Polenakovikj, J. Chaloska, B. Naumovska	Ergonomics	National Center for Development of Innovation and Entrepreneurship, 2012
10.4.	Pr	inted professional papers in	the last 5 years (up to 5)	1
	N	Author	Title	Publisher/year
	1.	T. Velkovski, P. Spasov, J. Chaloska, Lj. Dudeski	Analysis of the Occupational safety system in opencast mines	11 International Conference for Improvement of
				Safey and Health Systems, Prolom Banja, R. Serbia,
	2.	A. Angelovska. J. Chaloska, V. Gecevska	<i>Exploring the impact of economic instruments in the field of OSH</i>	International Conference for Regional Collaboration OSH BON TON, Ohrid, R. Macedonia, 29- 31.10. 2015
	3.	G. Zivcevski, J. Chaloska, A. Angelovska	Methodologies for risk assessment of the workplaces and proper selection criteria	International Conference for Regional Collaboration OSH BON TON, Ohrid, R. Macedonia, 29- 31.10. 2015
	4.	J. Chaloska	Profile of the experts for safety at work - experiences from RM	Center for Safety and Health at Work, Sofia, R.Bulgaria, 26.02.2016
	5.	J. Chaloska, T. Velkovski, M. Ivanov	<i>Records as a basis for sustainability of the systems for OSH</i>	Second Macedonian Congress on Occupational Health with international participation, Skopje, 12-14.10.2016

11.	Superv	vision (mentorship) of undergraduate, master and doctoral studies students							
	11.1.	Undergr	raduate	42					
	11.2.	Master		18	18				
	11.3.	Doctora	1	2 in progress	2 in progress				
12.	For me	entors of a	doctoral thesis, selected v	vork for the last four / five	e years				
	12.1.	Proof of	f printed scientific papers	s in international scientific	e journals or international				
		publications in the related field (up to 6) in the past five years							
		No	Author	Title	itle Dublisher/year				
		1	M Mitrevska I	Corporate Social	Towards Technical				
			Chaloska, D.	Responsibility	Education on Resource				
			Gechevski	Approach for	Savings for Industrial				
				Sustainable Business	Development				
				Model	-				
					University of Maribor,				
					Maribor, Slovenia, 2015				
					Politecnico di Torino,				
					Turin, Italy, 2015				
		2	V Filiposki I	Analysis of Injection	Journal for Technology of				
			Chaloska	Molding Cooling	Plasticity, vol.40, Novi				
		S		Systems and Effects on	Sad, R. Serbia, 2015				
		i		the Ejection Time of					
		i i i i i i i i i i i i i i i i i i i		the Part at					
		7		Thermoplastic					
			Injection Molding						
		3.	T. Velkovski, J.	Model of Semi-	Mechanical Engineering				
			Chaloska, Lj. Dudeski	Quantitative Risk	Scientific Journal, Vol.33,				
				Assessment for Safety	No.1, Skopje, R.				
				al work in Manufacturing	Macedollia, 2013				
				Industry					
		4.	J. Chaloska, Li.	Overview of the	International Journal of				
			Dudeski, T.	Macedonian Situation	Engineering, ISSN:1584-				
			Velkovski	<i>in the Field of OHS</i> 2673, Tome XIII,					
				and Future Hunedoara, Romania					
				Recommendations	august, 2015				
		5.	I. Catik. J.Chaloska.	Fluid-deposition of	Interdisciplinary				
		5.	D. Godec,	rocks is natural model	Description of Complex				
			M.Kovacik. A.	for additive production	Systems 15(3), 180-189,				
			Pilipovik, K. Skala		2017 (Web of Science)				
			-		SCI (Science Citation				
					Index) journals <u>IF=0.16</u>]				
		6.	V. Mucenski, I.Pesko,	Impact of Construction	Tehnicki Vjesnik, ISSN				
			T. Velkovski, J.	Machinery and Tools	1330-3651, 2019 Slavonski				
			Chaloska, A. Vujkov,	on Non-Fatal Injuries	brod, Croatia				
			D. Bibic	in the Building	IF=0,686				
	12.2	Drogf	f at loggt true minted asi-	<i>Processes</i>	nol acientific in an ala that				
	12.2.	have in	i at least two printed scie	d field in the past five year	nai scientific journais that				
		No	Author	Title	Publisher/vear				
		1.	I. Catik, J.Chaloska.	Fluid-deposition of	Interdisciplinary				

		D. Godec,		rocks is na	tural model	Descriptio	on of Complex
		M.Kovacik. A.		for additive	e production	Systems 1	5(3), 180-189,
		Pilipovik, K. Sk	cala			2017 (We	b of Science)
						SCI (Scien	nce Citation
						Index) jou	rnals <u>IF=0,16]</u>
	2.	V. Mucenski, I.	Pesko,	Impact of (Construction Tehnicki		Vjesnik, ISSN
		T. Velkovski, J.		Machinery	and Tools	1330-365	1, 2019 Slavonski
		Chaloska, A. Vi	ujkov,	on Non-Fa	tal Injuries	brod, Croa	atia
		D. Bibic		in the Build	ding	IF=0,686	
				Processes			
12.3.	Proof o	f at least three int	ernatior	nal meetings	' participation	in the past	four years
	No.	Author	Title		International		year
					meeting/conference		
	1.	J. Chaloska,	The occupationa		International	l	10-11.11.2016
		Lj. Dudeski,	safety	expert as a	Conference for		
		T. Velkovski	basis f	or	Regional		
			implen	nentation	Collaboratio	n, Bled,	
			and		Slovenia		
			sustair	ability of			
			OHS s	ystem			
	3.	J. Chaloska,	How to	o make	Continuous		18-22.09.2018
		M. Petkovski,	functio	onal osh	Education- t	he Basis	
		T. Velkovski,	system	?	of Improving	g of	
		S. J.			Occupationa	l Safety	
		Petkovska			15 th Internation	ional	
					Conference,	Kladovo,	
					R. Serbia		
	4.	J. Chaloska,			International		26-31.10.2017
		T. Velkovski,			Conference	for	
		M. Petkovski,			Regional		
		M.			Collaboratio	n,	
		Aleksevska			BUILDING	OSH IN	
			-		21st CENTU	JRY,	
					Budva, Montenegro		

Add. 4		Information about the teachers that lecture at the first, second and third study								
pr		р	ogram and are mentors on the doctoral thesis							
1.	Nam	e (First, Last)	Gligorche Vrtanoski							
2.	Date	of birth	April 15, 1966							
3.	Scien	ntific degree / Title	Ph.D.							
4.	Title degre	of the scientific ee	Ph.D. in Technical Sciences							
5.	Year	and institution	Education	Year	Institution					
	of th	e scientific	Ph.D. in	2003	Faculty of Mechanical					
	degr	ee	Mechanical		engineering - Skopje					
			Engineering							
			M.Sc. in	1996	Faculty of Mechanical					
			Mechanical		engineering - Skopje					
			Engineering							
			B.Sc. in	1991	Faculty of Mechanical					

				Mechanical				engi	neering - Skopje
				Engineering				_	
6.	Area	, field an	d	Area		Field		Spee	cialty
	parti	cular spe	cialty of	Technical-		Mechanica	al	Integ	grated CAD/CAM/CAE/
	mast	er of scie	ence	technology s	sciences	engineerin	ıg	Syst	ems and FEM of composite
	degree							mate	erial structures
7.	Area	, field an	d area of	Area	Field			Spee	cialty
	doct	oral degre	ee	Technical-		Mechanical		Desi	ign of Machine Tool
				technology s	sciences	engineerin	ng	Stru	ctures with Composite
0				T 1'1 1'			T'41	Mat	erials
8.	II en	npioyea, s	state	Institution	14f		Title at	na a	rea
	une I	nstitution		UKIN, Facu	iity of En ain a a		Full lif	me p	rolessor ol
	when	ic lic/slic	title	wiechanicai	Engineer	ing	Meena	inica	n engineering
	and	area in wi	hich						
	is na	med							
9.	List	of course	s that the tea	L Acher is lecturi	ing senai	rately for fir	st. secor	nd ai	nd third cycle
5.	9.1.	List of c	ourses that t	he teacher is l	ecturing	in the first of	cvcle	14 W	
	-	No.	Course		0	Study progr	am/insti	itutio	on
	1. Design, T		Design, Te	sting and		Production]	Enginee	ring	
			Maintenan	ce of Machine	e Tools		-	-	
		2.	Quality Ma	anagement	nt Industrial Engineering		ing a	nd Management	
		3.	Computer	Aided Produc	t	Production]	Enginee	ring	
	Developm		Developme	ent					
		4.	Computer	Design and		Production	Informa	tics	
		5	Animation	S d Wah Dagior		Duction	Information	tica	
		<u> </u>	Ducinose D	a web Design	1	Production]	Informa	tics	
		0.	Metrics	Tocesses and		FIGULEUOI	morma	lics	
	9.2.	List of c	ourses that t	he teacher is l	ecturing	in the secor	nd cycle	;	
		No.	Course			Study progr	Study program/institution		
		1.	Product De	evelopment		Production engineering			
		2.	Manageme	ent of Processes		Production engineering			
		3.	Manageme	ent of Develop	ment	Metrology, Management and Quality Control			t and Quality Control
			of New Pro	oducts and Processes					
		4.	Methods an	nd Techniques	sof	Metrology,	Manage	emen	t and Quality Control
		5	Davalanm	ont and		Droduct Life	o Cyclo	Mor	accoment DIM
		5.	Manageme	ent of Products	2		e-Cycle	Ivial	lagement – r Livi
		6	Modeling	and Simulation	n of	Production	engineer	ring	
		0.	Physical S	vstems		1 Iouuction v	engineer	ing	
	9.3.	Listofc	ourses that t	he teacher is l	ecturing	in the third	cvcle		
	2.01	No.	Course			Study progr	am/insti	itutio	on
		1.	CAx Tech	nologies		Mechanical	enginee	ering	
	2. Substitutio		Substitutio	n of the Mater	rials	Mechanical	enginee	ering	
		3.	Manageme	ent of Develop	ment	Mechanical engineering			
	of New Product		oducts			-	-		
10.	Selec	eted work	in the past t	five years					
	10.1	. Releva	ant scientific	printed paper	r(up to 5)	5)			
		No.	Author		Title				Publisher/Year
		1.	Simona		Descrip	ption and Ar	nalysis c	of	Mechanical Scientific
			Domazetov	vska,	Energy Manageme		ent		Engineering Journal, Vol.

		Gligorche Vrtanoski, Dame Dimitrovski	Information Systems, As a Useful Management Tool	35, No. 1, pp 61-72, Skopje 2017, Coden: MINSC5, ISSN 1857-5293, UDC 621.					
	2.	Nace Manushev, Gligorche Vrtanoski	Creating a Conceptual Innovation Model for Development of the Companies	Mechanical Scientific Engineering Journal, Vol. 35, No. 1, pp 17-30, Skopje 2017, Coden: MINSC5, ISSN 1857-5293, UDC 621.					
	3.	Zoran Pandilov, Betim Shabani, Dejan Shishkovski, Gligorche Vrtanoski	Reverse Engineering – An Effective Tool for Design and Development of Mechanical Parts	ACTA Technica Corviniensis – Bulletin for Engineering, Tome XI (2018) Fascicule 2 (April – June), e-ISSN: 2067 - 3809 (online)					
	4.	Marija Naskova, Gligorche Vrtanoski	Digital Marketing – Tool for Extending Product Lifecycle	Mechanical Scientific Engineering Journal, Vol. 34, No. 1, pp 415-422, Skopje 2016, Coden: MINSC5, ISSN 1857-5293, UDC 621.					
	5.	Kire Dimanoski, Gligorche Vrtanoski, Gordan Stojich	Simulation Model for Dimensioning Capacity of Border Railway Stations	Mechanical Scientific Engineering Journal, Vol. 34, No. 1, pp 27-33, Skopje 2016, Coden: MINSC5, ISSN 1857-5293, UDC 621.					
10.2.	Participation in scientific national and international projects (up to 5)								
	No.	Author	Title	Publisher/year					
	2.	Vrtanoski Gligorce (local team leader): Vrtanoski Gligorce	<i>EBRD Project No. C32161:</i> Rail Corridor VIII: First Phase / Fleet Renewal Project - Design and Implementation of Energy Management Information System in the Rail Sector, (01/2016 – Present (07/2019), Client: / Funding: EBRD Grant to MRT JSC Skopje and PERI Skopje / EBRD Grant, SubContractor: PADECO, Tokyo, Japan, Position: Local Team Leader and Railway Rolling Stock Expert. <i>EBRD Project No.</i>	Меѓународен проект финансиран од Европска Банка за Обнова и Развој / (01/2016 – 07/2019).					
		(team leader):	<i>C32418CC:</i> Business Segmentation and Fleet Management Advisory Services for Railway Transport Company,	финансиран од Европска Банка за Обнова и Развој / (11/2015 – 10/2018).					

		(11/2015 – Present	
		(10/2018), Client: / Funding:	
		EBRD Grant to Ministry of	
		Transport and	
		Communication / EBRD	
		Grant, SubContractor:	
		PricewaterhouseCoopers,	
		Rome, Italy, Position: Local	
		Team Leader and Fleet	
		Management Expert.	
3.	Vrtanoski Gligorce:	Management support for the	Меѓународен проект
		integrated tariff environment	финансиран од Европска
		(ITE) systems 2011S 118-	комисија / (08/2013 –
		193705 Publication	07/2014).
		Reference	
		EuropeAid13366DSERMK,	
		(08/2013 – 07/2014) Client: /	
		Funding: FAA Gmbh,	
		address Heiligenstädter	
		Lände 29, 1190, Wien,	
		Austria,	
		Position: Manager for	
		Recruiting Experts and	
		Supervision of their work	
4.	Vrtanoski Gligorce	EBRD Project No. 43997, –	Меѓународен проект
	(team leader):	TCS ID: 7040-37045:	финансиран од Европска
		Macedonian Railways	Банка за Обнова и Развој /
		Rolling Stock Renewal	(10/2012 - 07/2016).
		Assistance to PIU for TS:	
		Electric Locomotive GO	
		Modernization	
		(10/2012 - 07/2016)	
		Client: / Funding: EBRD	
		Grant to MRT JSC Skopje /	
		EBRD Grant, SubContractor:	
		AECOM, London, Great	
		Britain, Position: Freight	
		Wagon Specialist.	
		Team Leader and Electric	
		Locomotives Maintenance	
		Specialist	

	5.	Vrtanoski Gligorce (team leader):	Macedonian Railways Rolling Stock Renewal Project, EBRD Project No. 43997, (10/2012 – 03/2016) – TCS ID: 37045: Macedonian Railways Rolling Stock Renewal Project – Assistance to PIU for TS: Freight Wagon; Contract No.: C26160/AUS1-2013-03-03, Client: / Funding: EBRD Grant to MRT JSC Skopje / EBRD Grant, SubContractor: iC consulenten ZT GmbH, Vienna, Austria, Position: Freight Wagon Specialist.	Меѓународен проект финансиран од Европска Банка за Обнова и Развој / (10/2012 – 03/2016).						
10.3.	Printe	d books in the last five ye	ars (up to 5)							
	No.	Author	Title	Publisher/Year						
	1.									
	2.									
	3.									
	4.									
10.4	5.									
10.4.	Printee	Printed professional papers in the last 5 years (up to 5) No Author Title Publisher/Vear								
	NO.	Author		Publisher/Year						
	1.	Gligorche Vrtanoski	Regulator on water services in Macedonia: Watch what you wish	Sth Blennial Conference on Regulatory Governance, June 25 – 27, 2014, Barcelona, Spain.						
	2.	Igor Korunoski, Kire Dimanoski, Gligorche Vrtanoski	The Influence of the Railway Fleet Modernization on the Energy Efficiency	XVI Scientific-Expert Conference on the Railways RAILCON '14, October 09-10, 2014, Nish, Serbia.						
	3.	Gligorche Vrtanoski	WIPO Tool on Management of Academic Intellectual Property, Current Status of Teaching Intellectual Property at Higher Education Institutions	WIPO Inter-Regional Consulations, October 27- 28, 2013, Budapest, Hungary.						
	4.	Kire Dimanoski, Gordan Stojich, Gligorche Vrtanoski	Model for Measuring Quality of Railway Passanger Service	First International Conference "Transport for Today's Socienty", Proceedings, May 19 – 21, 2016, pp 380-389, Bitola, Macedonia, UDC 656.2.025.2:005. 336.3(497.11)						

		5.	Kire Dimanoski, Gordan Stojich, Gligorche Vrtanoski	Imp Rai Rep	proving Quality of Iway Passanger Se public of Macedon	rvice in ia	VIII Inter Conferen Problems Proceedin 2016, pp Katowice 978-83-9	rnational Scinetific ace "Transport 5 2016", ngs, June 27 – 28, 100-106, e, Poland, ISBN 35232-8-3
11.	Super	vision (mentorship) of undergra	al studies	l studies students			
	11.1.	Underg	graduate		Over 50			
	11.2.	Master	•		15			
	11.3.	Doctor	al		3			
12.	For me	entors o	f doctoral thesis, selecte	d work	x for the last four /	five year	S	
	12.1.	Proof	of printed scientific pape	ers in i	nternational scient	ific journ	als or inte	rnational
		public	ations in the related field	<u>d (up to</u>	o 6) in the past five	e years	1	
		No.	Author	T	Title		Publish	er/Year
		1.						
		2.						
		3.						
		4.						
		5.						
		6.						
	12.2.	Proof	of at least two printed sc	eientifi	c papers in internat	tional sci	entific jou	rnals that have
		impac	t factor in the related field	ld in th	ne past five years		1	
		No.	Author	Τ	Title		Publishe	er/Year
		1.						
		2.						
	12.3.	Proof	of at least three internati	onal m	neetings' participat	ion in the	e past four	years
		No.	Author	Fitle		Internat	tional	Year
						Meeting	<u>y</u> /	
		1				Contere	ence	
		1.						
		2.						
		3.						

Add	I. 4	Information about the teachers that lecture at the first, second and third study							
		progra	im and are mentors on the doctoral thesis						
1.	Name(Fin	rst, Last)	Zoran Pandilov	V					
2.	Date of b	irth	04.01.1965						
3.	Scientific	e degree/Title	VIII / Dr.						
4.	Title of the	ne scientific degree	Doctor in Tech	Doctor in Technical Sciences					
5.	Year and	institution of the	Education	Year	Institution				
	scientific	degree	B.Sc, in	1984-1989	Faculty of Mechanical				
			Mechanical		Engineering-Skopje				
			Engineering						
			M.Sc. in	1989-1993	Faculty of Mechanical				
			Mechanical		Engineering-Skopje				
			Engineering						
			Dr. in	1993-1997	Faculty of Mechanical				
			Technical		Engineering-Skopje				

				Sciences					
6.	Area	, field an	d particular	Area	Field	Specialt	Specialty		
	speci	alty of m	aster of science	Technical	Mechanical	Flexible	automation		
	degre	e		sciences	engineering				
7.	Area	, field an	d particular	Area	Field	Specialt	У		
	speci	alty of D	octoral degree	Technical	Mechanical	Flexible	automation		
		-	-	sciences	engineering				
8.	If em	ployed, s	state the	Institution			Title and area		
	instit	ution wh	ere he/she	University Sa Cyril and Methodius Full time			Full time		
	work	s and the	e title and area in	Eaculty of Med	cyrri alla Meu chanical Engine	Pering _	Professor		
	whic	h is name	ed	Skonie			Production		
				tech			technologies and		
							systems		
9	Listo	f courses	that the teacher is le	ecturing senarate	elv for first sec	cond and th	hird cycle		
<i>.</i>	9.1.	List of	f courses that the tea	cher is lecturing	in the first cvc	ele			
	No. Course				Study program/Institution				
		1	Automotion in ma	duction	Draduction En	ainaanina	In ductric 1		
		1.	Automation in production		Froduction En	gineering, nd Monog	, industrial		
					Engineering and Management/ Faculty of				
					Mechanical Engineering, University Ss.				
		2	Numerical control	and	Production Engineering/ Faculty of				
	CAD/CAM			und	Mechanical Engineering, University Ss.				
	3. Industrial robotics			Cvril and Met	hodius-Sk	opie			
				Production En	gineering.	Automation and			
				control system	ns/ Faculty	y of Mechanical			
					Engineering, U	Jniversity	Ss. Cyril and		
					Methodius-Sk	opje	-		
		4.	Numerically control	Production Engineering, Mechatronics / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje			, Mechatronics /		
			machines				ingineering,		
							Methodius-Skopje		
	9.2.	List of	f courses that the tea	cher is lecturing	in the second	cycle			
		No.	Course		Study program	m/Instituti	on		
		1.	Flexible Automati	on	Advanced man	nufacturin	g systems and		
					technologies,	Virtual m	anufacturing		
					Engineering,/	Faculty of	Niechanical Sa Curril and		
					Methodius Sk	onie	SS. Cyffi allu		
		2	Modeling and sim	ulation of	Advanced manufacturing systems and				
		2.	nhysical systems		technologies /	Faculty of	Mechanical		
			physical systems		Engineering. I	Jniversity	Ss. Cyril and		
					Methodius-Sk	opie	220 2 9 111 4114		
		3.	Numerically control	olled	Advanced man	nufacturin	g systems and		
			machines and CNO	C	technologies,	Virtual m	anufacturing		
			programming		engineering, N	/lodeling a	nd simulation of		
					plastic deformation technologies and				
					processes/ Fac	ulty of Me	echanical		
					Engineering, U	Jniversity	Ss. Cyril and		
					Methodius-Sk	opje			
		4.	CAD/CAM system	ns	Advanced man	nufacturin	g systems and		
					technologies,	Modeling	and simulation of		
					plastic deformation technologies and				

					processes /Fac	sulty of Mechanical	
					Engineering	University Sa Cyril and	
					Matha dian Ch	Sinversity SS. Cyrii and	
		~		1	Methodius-Sk		
		5.	Virtual design of	production	Virtual manuf	acturing engineering/ Faculty	
			systems and mach	nnes	of Mechanica	Engineering, University Ss.	
					Cyril and Met	hodius-Skopje	
		6.	Systems for auton	nation	Product life c	ycle management/Faculty of	
					Mechanical E	ngineering, University Ss.	
					Cyril and Met	hodius-Skopje	
		7.	Automation of the	e process of	Metrology, m	anagement and control of	
			measurement and	control	quality/ Facul	ty of Mechanical Engineering,	
					University Ss.	Cyril and Methodius-Skopje	
		8.	Safety of machine	es and devices	Management	with Occupational Safety	
			5		and Health Sy	stems / Faculty of Mechanical	
					Engineering.	University Ss. Cyril and	
					Methodius-Skopie		
	93	List	of courses that the te	acher is lecturin	σ in the third cy	rcle	
		No	Course		Study progra	m/Institution	
		1	Numerical and pr	ogram control	Mechanical F	ngineering / Faculty of	
		1.	of movements and	1 processes	Mechanical E	ngineering University Ss	
			of movements and	i processes	Cyril and Met	hodius-Skopie	
		2	Flavible automate	d machines	Mechanical F	ngineering / Eaculty of	
		2.	davious and produ	u machines,	Mochanical E	ngineering / Faculty Of	
			devices and produ	iction systems	Curil and Mat	hadiya Sharia	
		2	Salastad alastana	fuere nel etier	Cyrri and Mee	noulus-skopje	
		3.	Selected chapters	from robotics	Mechanical E	ngineering / Faculty of	
					Mechanical E	ngineering, University Ss.	
		4			Cyril and Met	hodius-Skopje	
		4,	CAx technologies		Mechanical E	ngineering / Faculty of	
					Mechanical E	ngineering, University Ss.	
	~ 1				Cyril and Methodius-Skopje		
10.	Selecte	ed resul	Its in the past five year	ars			
	10.1.	Rele	vant printed scientifi	c papers (up to :	5)		
		No.	Author	Title		Publisher/year	
		1.	Z.Pandilov , V.	Static and dyn	amic stiffness	Applied Mechanics and	
			Dukovski	of the mechati	onic position	Materials Vol. 332 (2013) pp	
				servo systems		186-193, Trans Tech	
						Publications, Switzerland,	
						ISBN-13: 978-3-03785-733-	
						5, (ISSN: 1660-9336)	
						(International journal)	
		2.	Z.Pandilov , V.	Improving the	HSC linear	Key Engineering Materials	
			Dukovski	motor milling	machine	Vol. 581 (2014) pp 384-390.	
				contouring ac	curacy	Trans Tech Publications	
					, and a set of the set	Switzerland ISBN 978-3-	
						03785-840-0 (ISSN: 1013-	
						9826) (International journal)	
		3	7 Pandilov V	Comparison	f the	$\Delta CT \Delta TECHNIC \Lambda$	
		5.	Dukovski	characteristics	hetween	CORVINIENSIS_Bullatin of	
			DURUVSKI	seriel and new	llel roboto	Engineering Tome VII	
						(Voor 2014) Esseitante 1	
						(1 cal 2014), Fascicule I	
						(January-March), pp. 143-	
						100, ISSN 2067-3809	

				(International journal)
4	ŀ.	Z.Pandilov , V.	Analytical Determination of	Applied Mechanics and
		Dukovski	the CNC Machines High-	Materials Vol. 555 (2014) pp
			Speed Feed Drives Position	505-510, Trans Tech
			Loop Gain	Publications, Switzerland,
				ISSN: 1660-9336
				(International journal)
5	5.	Zoran Pandilov,	Virtual modeling and	ANNALS of Faculty
		Andrzej Milecki,	simulation of CNC machine	Engineering Hunedoara –
		Amadeusz	feed drive system	International Journal of
		Nowak, Filip		Engineering , Tome XIII
		Górski, Damian		[2015] – Fascicule 1
		Grajewski,		[February], pp. 19-28, ISSN:
				1584-2665
				(International journal)
.2.	Parti	cipation in scientific	national and international proje	ects (up to 5)
	No.	Author	Title	Publisher/year
1	•	Igor Drstvensek,	Applications of Rapid	(Central European Exchange
		Zoran Pandilov,	Manufacturing in	Program for University
		et all.:	Biomedical Fields	Studies) CEEPUS III
				Program SI-0206 project:,
				(five years project 2010-
				2014). (International project)
				(Project leader from
		$\mathbf{P} 1 + \mathbf{C}$		Macedonian side)
2	<u>.</u>	Robert Cep,	Knowledge Bridge for	(Central European Exchange
		Loran Pandilov,	Students and Teachers in	Studios) CEEDUS III
		et all.	Technologies	Program CZ 0201 project
			reemologies	(four years project 2011-
				2014) (International project)
				(Project leader from
				Macedonian side)
3	}	Nicolae	Implementation and	(Central European Exchange
	•	Ungureanu.	utilization of e-learning	Program for University
		Zoran Pandilov.	systems in study area of	Studies) CEEPUS III
		et all.	production engineering in	Program RO-0202 project.
			Central European Region	(twelve years project 2008-
				2019). (International project)
				(Project leader from
				Macedonian side)
4	ŀ.	M. Borzan. Z.	"Teaching and Research of	(Central European Exchange
.		Pandilov, et all.	Environment-oriented	Program for University
			Technologies in	Studies) CEEPUS III
			Manufacturing",	Program RO-0013 project.
				(six years project 2014-
				2019). (International project)
				(Project leader from
				Macedonian side)
5	5.	I. Mankova, Z.	"ADVANCES IN	(Central European Exchange
		Pandilov, et all.	MACHINING : skills and	Program for University
			competencies for the future"	Studies) CEEPUS III

					Drogram SV 0067 mainst					
					(two yours project 2016					
					(two years project 2010-					
					2017). (Project leader from					
					(International project)					
	10.2	Duint	ad haales in the last f		(International project)					
	10.3.	Print	ted books in the last I	ive years (up to 5)	D 11'1 /					
		NO.	Author	litte	Publisher/year					
		1.	Zoran Pandilov	Automation	Faculty of Mechanical					
					Engineering-Skopje, 2015,					
		-			internal edition					
		2.								
	10.4	<i>3</i> .								
	10.4.	r mileu professional papers in the fast 5 years (up to 5) No. Author Titlo								
		No.	Author	litle	Publisher/year					
		1.	Amadeusz	Characteristics of the	R. Szewczyk et.al. (Eds.)					
			Nowak, Bartosz	Improved Magnetic Shape	Progress in Automation,					
			Minorowicz,	Memory Alloy Actuator	Robotics and Measuring					
			Frederik	Test Stand	Techniques, Advances in					
			Stefański, Zoran		Intelligent Systems and					
			Pandilov		Computing Volume 350,					
					2015, pp 169-176, Springer					
					International Publishing					
					Switzerland 2015, ISBN					
					978-3-319-15795-5, ISSN					
					2194-5357					
		2.	A. Naumov, Z.	Benefits of implementation	Mechanical Engineering –					
			Pandilov	of flexible automation and	Scientific Journal, Vol. 33,					
				CAD/CAM systems in	No. 1, pp. 91–102 (2015),					
				metal processing companies	CODEN: MINSC5, In					
					print: ISSN 1857–5293, On					
					line: ISSN 1857–9191.					
		3.	N. Veselinkovski,	Benefits of upgrading CNC	Mechanical Engineering –					
			Z. Pandilov	machine for engraving and	Scientific Journal, Vol. 33,					
				cleaning metal parts	No. 1, pp. 103–108 (2015),					
					CODEN: MINSC5, In					
					print: ISSN 1857-5293, On					
					line: ISSN 1857–9191					
		4.	Z. Pandilov	Electrochemical machining	Proceedings of the					
				of materials used in extreme	Industrial Workshop					
				conditions,	"Innovations towards					
					technology for extreme					
					conditions industry",					
					University of Burgos,					
					October 5-7, 2016, Burgos,					
					Spain					
		5.	Betim Shabani,	Analyzing and application	Mechanical Engineering –					
			Zoran Pandilov	of Reverse Engineering for	Scientific Journal, Vol.35.					
				design and development of	No.2, pp. 89-96 (2017).					
				mechanical parts	CODEN: MINSC5. In					
				r r	print: ISSN 1857–5293. On					
					line: ISSN 1857–9191					
11.	Superv	vision (mentorship) of under	graduate, master and doctoral s	tudies students					
	1	(L /	-						

	11.1.	Underg	graduate			Over 170	
	11.2.	Master	•			15	
	11.3.	Doctor	al				
12.	For me	entors of	doctoral theses, sele	ected papers	for the last four/fiv	ve years	
	12.1.	Proof o	f printed scientific	research pap	ers in international	l scientific journals or	
		internat	tional scientific pub	lications in	the given field (up to six) in the last five years		
		No.	Author	Title		Publisher/year	
		1.	Z.Pandilov , V.	Static and	dynamic stiffness	Applied Mechanics and	
			Dukovski	of the mech	hatronic position	Materials Vol. 332 (2013) pp	
				servo syste	ems,	186-193, Trans Tech	
				_		Publications, Switzerland,	
						ISBN-13: 978-3-03785-733-	
						5, (ISSN: 1660-9336)	
						(International journal)	
		2.	Z.Pandilov , V.	Improving	the HSC linear	Key Engineering Materials	
			Dukovski	motor mill	ing machine	Vol. 581 (2014) pp 384-390,	
				contouring	accuracy	Trans Tech Publications,	
						Switzerland, ISBN 978-3-	
						03785-840-0, (ISSN: 1013-	
						9826) (International journal)	
		3.	Z.Pandilov , V.	Compariso	on of the	ACTA TECHNICA	
			Dukovski	characteris	tics between	CORVINIENSIS-Bulletin of	
				serial and p	parallel robots	Engineering, Tome VII	
						(Year 2014), Fascicule 1	
						(January-March), pp. 143-	
						160, ISSN 2067-3809	
						(International journal)	
		4.	Z.Pandilov , V.	Analytical	Determination of	Applied Mechanics and	
			Dukovski	the CNC M	lachines High-	Materials Vol. 555 (2014) pp	
				Speed Feed	d Drives Position	505-510, Trans Tech	
				Loop Gain		Publications, Switzerland,	
						ISSN: 1660-9336	
		_				(International journal)	
		5.	Zoran	Virtual mo	deling and	ANNALS of Faculty	
			Pandilov,	simulation	of CNC machine	Engineering Hunedoara –	
			Andrzej Milecki,	feed drive	system	International Journal of	
			Amadeusz			Engineering, Tome XIII	
			Nowak, Filip			[2015] - Fascicule I	
			Gorski, Damian			[February], pp. 19-28, ISSN:	
			Grajewski			1584-2665 (International	
		6	7 Dandilary V	USC lines		Journal)	
		0.	L.Panullov , V.	HSC linear	iffences	Applied Mechanics and Motoriala, Vol 772 (2015) nr	
			DUKOVSKI	dynamic st	inness,	Materials, Vol 772 (2013) pp	
						218-225, Irans rech Dublications, Switzerland	
						Fublications, Switzenand,	
						(International journal)	
	122	Proof of at least two printed scientific		recearch nonors in	(international scientific		
	12.2.	iournal	s with impact factor	\cdot in the given	n field in the last fi	ve vears	
		No	Author	Title		Publisher/vear	
		1	Z Pandilov V	Static and	dynamic stiffness	Applied Mechanics and	
		1.	Dukovski	of the mecl	hatronic position	Materials Vol. 332 (2013) nn	

			servo systems	186-193, Trans	Tech
			-	Publications, Swit	tzerland,
				ISBN-13: 978-3-037	85-733-
				5 (ISSN: 166	50-9336)
				(International journal	n () () () () () () () () () () () () ()
	2	7 Dandilary V	Language at a USC linear	Kay Engine aning Ma	1) taniala
	۷.	\mathbf{Z} . Pandhov, V.	Improving the HSC linear	Key Engineering Ma	
		Dukovski	motor milling machine	Vol. 581 (2014) pp 3	84-390,
			contouring accuracy	Trans Tech Publicati	ons,
				Switzerland, ISBN 9	978-3-
				03785-840-0, (ISSN:	1013-
				9826) (International	journal)
12.3.	Proof o	f at least three parti	cipation in international meeting	ngs in the last four yea	ırs
	No.	Author	Title	International	
				meeting/conference	
	1.	Amadeusz	Characteristics of the	Proceedings of the	2015
		Nowak, Bartosz	Improved Magnetic Shape	Conference	
		Minorowicz.	Memory Alloy Actuator	"Automation	
		Frederik	Test Stand	2015" March 18 -	
		Stefański	Test Stand	2013, March 10 - 2015	
		Zoran Dandilay		20, 2013, Industrial	
		Zoran Pandhov		Industrial	
				Institute for	
				Automation and	
				Measurements	
				PIAP, Warsawa,	
				paper 72,	
	2.	Z. Pandilov	Electrochemical machining	Proceedings of the	2016
			of materials used in	Industrial	
			extreme conditions	Workshop	
				"Innovations	
				towards technology	
				for extreme	
				conditions	
				inductor?	
				Industry,	
				University of	
				Burgos, October 5-	
				7, 2016, Burgos,	
				Spain	
	3.	Zoran Pandilov	Electrochemical machining	Proceedings of the	2016
			(tolerances, advantages and	Workshop	
			disadvantages)	"Electrochemical	
				processing	
				methodologies and	
				corrosion	
				protection for	
				device and systems	
				minioturization"	
				WC1 National	
				wor, inational	
				i ecnnical	
				University Athens,	
				October 12–14,	
				2016, Athens,	
				Greece	

Add	1.4	Information abo	Information about the teachers that lecture at the first, second and third					
_		S'	tudy program and	are	e mentors	on the doctoral thesis		
1.	Name (F	First, Last)	Tatjana Kandikjan	1				
2.	Date of	birth	March 10,1957					
3.	Scientifi	c degree/ Title	Ph.D.					
4.	Title of	the scientific degree	Ph.D.in Technical Sciences					
5.	Year and	d institution of	Education		Year	Institution		
	the scien	tific degree	Ph. D in		1994	Ss. Cyril and Methodius		
			Mechanical			University, Skopje		
			Engineering		1006			
			M.Sc.in		1986	Univerza Edvarda		
			Mechanical			Kardelja, Ljubljana,		
			Engineerin			Slovenia		
			B.Sc.in		1980	Ss. Cyril and Methodius		
			Mechanical			University, Skopje		
			Engineerin					
6.	Area, field and particular		Area		Field	Specialty		
	specialty	of master of	Technical sciences	s	Mecha	Computer-Aided Design		
	science of	degree		nical				
7	Area field and area of		Area		Field	Specialty		
7.			Alta		Tielu	specially		
	Doctoral degree		Technical Sciences	s	Mech	Design Automation		
					anical			
8.	If emplo	yed, state the	Institution			Title and area		
	institution where		UKIM, Faculty of			Full time professor		
	ne/sne w	orks and the	Mechanical Engineeri		ing	Mechanical		
	in normal	area in which	e			engineering		
0	IS Halliet	1 	r is lecturing separately for first second and third cycl		a a a a d third area la			
9.		ist of courses that the	teacher is lecturing in the first cycle					
	9.1. L		teacher is recturing	teacher is lecturing in the first cycle		am/institution		
	1	Findingering Des	ian	M	echanical	engineering		
	2	New Product De	velonment	In	dustrial de	sign		
	3	Packaging Desig	m	In	dustrial de	sign		
	4	Eco-design	511	In	dustrial de	esign		
	9.2. L	ist of courses that the	teacher is lecturing	in	the second	d cvcle		
	N	lo. Course	C	St	udy progr	am/institution		
	1	. Computer-aided	product design	In	dustrial de	esign and marketing		
	2	. Product customi	zation and rapid	In	dustrial de	esign and marketing		
		prototyping	1			2 2		
	3. Product developminnovation mana		ment and	In	dustrial de	esign and marketing		
			gement	т	1 . 1 1	• 1 1 .•		
	4 0.2 I	ist of coverage that the	topohonia la starius	In in	the third	esign and marketing		
	9.3. <u>L</u>	Ist of courses that the	teacher is lecturing	, III St	udy progr	ycle		
		Product design a	nd development	SI M	echanical	engineering		
		Product design a	or the	IVI M	echanical	engineering		
		environment			Cenameal	engineering		
10	Selected	work in the past five	vears	L				
10.		elevant scientific prir	$\frac{1}{1}$ ted namer (up to 5)					
I	10.1.	cone vanti serentine pill	nea paper (up to 5)					

	No.	Author	Title	Publisher/ year
	1.	Tatjana Kandikjan	"The Automation of GD&T Specification in CAD Systems"	Digital Proceedings of the 5th Int. Conf. on Power Transmission, BAPT 2016, Ohrid, ISBN 978-608-4624- 25-7, pp 206-212
	2.	Ile Mircheski, Remon Pop-Iliev, Tatjana Kandikjan	" A Method for Improving the Process and Cost of Nondestructive Disassembly"	Journal of Mechanical Design 2016; Vol.138(12):121701- 121701-15J. (15 pages), Journal Impact Factor: 1.688 ©2015 Thomson Reuters, 2015 Journal Citation Reports®, ASME Digital Collection
	3.	Ile Mircheski, Tatjana Kandikjan, Remon Pop-Iliev	" Automating non- destructive product disassembly sequence generation "	Book of proceedings of the 1st international conference on engineering and natural sciences (ICENS) 2015, Yıldız Technical University of Istanbul, Skopje, R. Macedonia, May 15-19, 2015, pp 606-616
	4.	Ile Mircheski, Tatjana Kandikjan, Sofija Sidorenko	" Comfort analysis of vehicle driver's seat through simulation of the sitting process "	Technical Gazette, Croatia, Vol. 21, No. 2, 2014, pp 291- 298, UDK/UDC 62(05)=163.42=III, ISSN 1330-3651. (JIF = 0.601, JCR 2014 by Thomson Reuters, April, 2014)
	5.	Ile Mircheski, Tatjana Kandikjan, Remon Pop-Iliev	"3D CAD Integrated Method For Optimizing The Design For Non-Destructive Disassembly",	Digital Proceedings of TMCE 2014 Symposium, Tools and Methods of Competitive Engineering (TMCE), Delft University of Technology, Budapest, Hungary, May 19- 23, 2014, ISBN/EAN 9789461861771, pp 801-812.
10.2.	Part	icipation in scientific n	ational and international project	cts (up to 5)
	<u>No.</u> 1.	Author Grant holder : Prof. Michael Krohn, Zürcher Hochschule der Künste, Zurich,	Title "Design with Social Impact",	Publisher/year , 2015-2017
10.3.	Prin	ted books in the last fiv	ve years (up to 5)	-
	No.	Author	Title	Publisher/year
10.4	1.	tod professional man	in the last 5 years (or to 5)	
10.4.	Prin	neu professional papers	in the last 5 years (up to 5)	

1		No.	Author	Title			Publisher/year	
		1.	Tatjana Kandikjan, Sofija Sidorenko, Ile Mircheski	"Designi	ng the Evolutio	on 2"	Ministry of Cul Republic of Ma 2017, pp. 126	ture, cedonia,
11.	Super	vision	(mentorship) of under	graduate,	master and doct	toral st	udies students	
	11.1.	Unde	ergraduate		12			
	11.2.	Deet	er orol		2			
12	11.3. For m	Doci	oral of doctoral thesis sale	eted work	<u> </u> 2 x for the last fou	r/five	VADES	
12.	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		<i>)</i> III UII	Publisher/ year	
							¥	
	12.2.	Proo	f of at least two printed	d scientific	c papers in inter	rnation	al scientific journ	als that
		No	Author	Title	Title		Publisher/vear	
		1.	Ile Mircheski	" A Metl	nod for Improvi	ng the	Journal of Mech	nanical
			Remon Pop-Iliev,	Process a	and Cost of		Design 2016;	
			Tatjana Kandikjan	Nondest	ructive Disasser	mbly"	Vol.138(12):121701-	
							121701-15J. (15 pages),	
							Journal Impact Factor:	
							1.688 ©2015 TI	nomson
							Reuters, 2015 J	ournal
							Citation Report	s®, ASME
							Digital Collection	on
		2.	Ile Mircheski,	" Comfo	rt analysis of ve	ehicle	Technical Gaze	tte, Croatia,
			Tatjana Kandikjan,	driver's	seat through		Vol. 21, No. 2, 2	2014, pp
			Sofija Sidorenko	simulatio	on of the sitting		291-298, UDK/	UDC
				process "		02(03) = 103.42 = 1330 3651 (IIE	-111, 1551	
				-		1330-3031. (JIF = 0.601, ICR 2014 by Thomson		
							Reuters, April, 2	2014)
	12.3.	Proo	f of at least three inter	national m	neetings' partici	pation	in the past four y	ears
		No.	Author	Title	- - -	Interr	nationalmeeting/	year
						confe	rence	
		1.						

Add. 4		Information about the teachers that lecture at the first, second and third						
		st	tudy program and a	re mentors on the d	octoral thesis			
1.	1. Name (First, Last)		Tashko Rizov	Tashko Rizov				
2.	Date of b	oirth	March 5, 1983	March 5, 1983				
3.	Scientific degree / Title		Ph.D.					
4.	Title of t	he scientific degree	Ph.D. in Technical Sciences					
5.	Year and	institution of	Education	Year	Institution			
	the scientific degree		Ph.D in	2014	Faculty of			
			Mechanical		Mechanical			
			Engineering		engineering - Skopje			

				M. Sc. in	1	2010		Faculty of
				Mechani	cal			Mechanical
					111	2006		Engineering - Skopje
				B. Sc. in	1	2006		Faculty of Machanical
				Engineer	cal			Mechanical anginaaring Skania
6		C 1 1	1 .1 1	Lingineer	111			engineering - Skopje
6.	Area,	field at	nd particular	Area	1	Field	.1	Specialty
	specia	lty of f	naster of	Technica	li sciences	Mechanica	11 a	General mechanical
	scienc	e degr				engineerin	g	engineering design
								engineering design
7.	Area,	field a	nd area of	Area		Field		Specialty
	doctor	al deg	ree	Technica	l sciences	Mechanica	ıl	General mechanical
						engineering		engineering,
								engineering design
8.	If emp	oloyed,	state the	Institutio	n		Title and	l area
	institu	tion w	here	UKIM, I	Faculty of		Assistan	t professor
	he/she works and the title and area in which is named		Mechani	cal Engine	eering General		mechanical	
				•	engineering, engineering design		ring,	
							ring design	
9	Listo	f cours	es that the teacher	 r is lecturi	na senarate	ly for first se	econd and	third cycle
).	9 1	Listo	of courses that the	teacher is	lecturing i	n the first cvo	ele	
	<i></i>	No.	Course		ieetaining i	Study progr	am/institi	ution
		1.	Engineering Gr	aphics		All		
		2.	Design Technic	ues		Industrial D	esign	
		3.	3D Modelling a	nd Visual	ization	Industrial D	esign	
		4.	Design of Web	Sites		Industrial Design		
	9.2.	List o	of courses that the	teacher is	lecturing i	n the second	cycle	
		No.	Course		Study program/institution			ition
		1.	3D Visualizatio	n – Augm	Augmented and Industrial engineering and manage		g and management	
		_	Virtual Reality					
		2.						
		3.						
		4.						
	9.3.	List o	f courses that the	teacher is	lecturing i	n the third cv	cle	
		No.	Course			Study progr	am/institu	ıtion
		1.						
		2.						
10.	Select	ed wor	k in the past five	years	· · ·			
	10.1.	Relev	ant scientific prin	ited paper	(up to 5)			D -1.1.1
		INO.	Author Minch agli I Di		I Itle	Non destant (rublisher/year
		1.	Mircheski, I., Ki	201, 1.	Diagage	Nondestruct	ive	TEM Journal.
					UISassem	ury Frocess	ity and	volume 0, issue 4, $P_{ages} 671 677 ISSNI$
					RFID	Sinchicu Kcal	ity and	1 ages 0/1 - 0/7, 1351N 2217_8300 Nov
					Product/l	Part Tracking		2017

1		2	T Dirow M Kingowski	Duisson Assistance Systems in	Internetional Scientific
		Ζ.	\mathbf{D} Techevalue	Driver Assistance Systems in	International Scientific
			K. Tasnevski:	Vehicles Using Augmented	Journal trans &
				Reality – Benefits and	ΜΟΤΟΑUΤΟ
				Challenges;	WORLD, Year II,
					Issue 4/2017; ISSN
					1313-5031.
		3.	T. Rizov, M. Kiosevski	Advanced Visualization	Scientific Technical
		5.	R Tashevski	Technologies as a Tool in the	Union of
				Area of Automativa	Machanical
				Final of Automotive	
				Engineering	Engineering / 2016
		4.	T. Rizov, R. Tashevski	Advanced Technologies for	XXV International
				Visualization as a Tool for	Automotive
				Identification of Vehicle Details	Conference Science
				and Elements	and Motor Vehicles /
				and Elements	
					2013
		5.	T. Rizov, E. Rizova	Augmented Reality as a	International Journal
				Teaching Tool in Higher	of Cognitive Research
				Education	in Science,
					Engineering and
					Education (IJCRSEE)
					/ 2015 Global Impact
					Factor (2014)=0.678.
					ICV (2013)=6.76
	10.2	Dorti	instion in scientific nation	al and intermational projects (up to	5)
	10.2.	No	Author	Title	Dublisher/vear
		1	T Dizov A	International	$\frac{1}{1}$ UNIDO / 2011 2012
		1.	I. KIZOV, A.	international	UNIDO / 2011-2013
		2	M Kingayaki D Danay	Internetional Draight for	ED7 Decommon /
		۷.	I. Circulator A. Kastia T.	Thermational Project for	
		2	I. Gjurkov, A. Kosuc, I.	I ransport EU-western	2009-2010.
	10.2	J. Drint	d books in the last five year	rs(up to 5)	
	10.3.	No	Author	Title	Publisher/voor
		1	D Tashavala T D'	Tachnical drawings	1 uuiisiici/ycai
		1.	K. Tashevski, T.Kizov	lecinical drawings with	winnstry of Education
				descriptive geometry and	and Science of
				Autocad	Kepublic of Macedonia
					/ 2011
		2.	R. Polenakovic, T. Rizov	Basics of Logistics	University "Ss. Cyril
				_	and Methodius" –
					Skopje, 2014
	10.4.	Printe	ed professional papers in the	e last 5 years (up to 5)	
		No.	Author	Title	Publisher/year
		1.			
		2.			
		3.			
		4			
		5.			
11	Super	vision	(mentorshin) of undergradu	Late, master and doctoral studies st	hudents
	11 1	Unde	roraduate		
	11.1.	Maeta	-5-ruuuuu	2	
1	11.4.	Intasu	~1	<i>L</i>	

	11.3.	Doctor	al		-			
12.	For me	entors o	f doctoral thesis, selecte	ed work i	for the last four	/ five years		
	12.1.	Proof	of printed scientific pap	ers in in	ternational scier	ntific journal	s or	
		interna	ational publications in t	he relate	d field (up to 6)	in the past t	five years	
		No.	Author	Tit	tle		Publishe	er/year
		1.						
	12.2.	Proof	Proof of at least two printed scientific papers in international scientific journals that					
		have	have impact factor in the related field in the past five years					
		No.	Author	Tit	le		Publisher/year	
		1.						
	12.3.	Proof	of at least three internat	ional me	etings' participa	ation in the p	bast four	years
		No.	Author	Title	Internation		al	year
					meeting/co		nferenc	
		1.						

Add	I. 4	Ι	nformation abo	ut the teachers that	lecture at th	ne first, s	econd and third	
			st	udy program and a	re mentors	on the de	octoral thesis	
1.	Name (F	irst,	Last)	Anita Grozdanov				
2.	Date of t	oirth		July 2, 1965				
3.	Scientifi	c deg	ree / Title	Ph.D.				
4.	Title of t	the sc	cientific degree	Ph.D. in Technical Sciences				
5.	Year and	Year and institution of		Education	Year		Institution	
	the scien	ntific	degree	Ph.D in Technical	2002		Faculty of	
				Science			Technology and	
							Metallurgy-Skopje	
							Metallurgy	
							Mechanical	
							engineering - Skopje	
				M. Sc. in	1994		Faculty of	
				Technical			Technology and	
				Science		Metallurgy-Skopje		
				- D. C.a. in	1090		E cultur of	
				B. SC. In Technical			Technology and	
				Technical Seiemee			Technology and Motallyray Sharia	
				Science	D' 11		Wietanurgy-Skopje	
6.	Area, fie	ld an	d particular	Area	Field		Specialty	
	specialty	of n	naster of	Technical sciences	Technolog	gy	Organic	
	science of	degre	e				a&Technical fiber	
7.	Area, fie	ld an	d area of	Area	Field		Specialty	
	doctoral	degr	ee	Technical sciences	Technolog	gy	NEW Technologies	
							for Composite	
8.	If emplo	yed,	state the	Institution		Title and	d area	
	1nstitutio	n wn		UKIM, Faculty of		Full tim	e professor	
	he/she w	orks	and the	Mechanical Enginee	ering	Polymer	and Nano	
	title and area in which				material	S		
	is named	1			0 0			
9.	List of co	ourse	s that the teacher	r is lecturing separatel	y for first, s	econd and	I third cycle	
	9.1. <u>L</u>	ist of	t courses that the	teacher is lecturing in	the first cy			
	N	0.	Course		Study progr	am/institu	ition	
	1	•	Structure and P	roperties of	Polymer materials-Design & Management			

		2.	Structure and Pro	Structure and Properties of		nd nanotechnology		
		3.	Polymer Processi	ng	Material Science a	nd nanotechnology +		
		4.	LCA of Polymers	5	Polymer materials-	-Design & Management		
	9.2.	List c	of courses that the te	eacher is lecturing	in the second cycle			
		No.	Course		Study program/ins	titution		
		1.	Advanced chapter	rs -Polvmer	New Materials - Po	olvmers		
		2.	Application of Po	lymers in	New Materials - Po	olymers		
		3.	Management of S	ustainable Deve.	Management of Qu	uality		
		4.	Cleaner Production	on	Environmental Eng	gineering		
	9.3.	List c	of courses that the te	eacher is lecturing i	in the third cycle			
		No.	Course		Study program/ins	titution		
		1.	Polymer Processi	ng	Technology			
		2.						
10.	Selecte	ed wor	k in the past five ye	ears				
	10.1.	Relev	ant scientific printe	ed paper (up to 5)				
		No.	Author	Title		Publisher/year		
		1.	Anita Grozdanov	Synthesis and ch	aracterization of	Materials Chemistry		
				nanocomposites b	based on PANI	and Physics, 185, 83-90		
				and carbon nanos	tructures prepared	(2017), IF=2,1		
				by lectropolymer	ization			
		2	Anita Grozdanov	Electrocatalysts	with reduced noble	Bulgarian Chemical		
		2.		metals aimed for	· hydrogen/oxygen	Communications 50 82-		
				evolution suppo	rted on Magneli	88(2018) (IF=0.238)		
				phases Part	I. Physical			
				characterization.	ii ingoiour			
		3	Anita Grozdanov	Vitrification of h	azardous Fe-Ni	Journal of		
		5.		wastes into glass.	ceramic with	Fnvironmental		
				fine crystalline st	ructure and	Chemical		
				elevated exploitat	tion characteristic	Engineering 5 432		
				cievated exploita	tion endideteristic	441(2017)(IF=3.42)		
		1	Anita Grozdanov	Study of Granhene	obtained by	Sci Fed Nanotech		
		7.	Allita Olozuallov	Study of Graphene	obtained by	Sci Fed Nanotech		
				Flectrolysis in Sul	furic Acid	Research Letters (OPEN)		
				Electrolytes		ACCESS)		
				Liectionytes		(2017)Vol 1 Iss 2		
		5	Anita Grazdanov	Multingnosonsor	Pasad on	Acta Dhysica		
		5.	Allita Olozuallov	MWCNT _a and D	o Dascu oli	Acta Flysica Delenice Series A		
				Production and	Characterization	$132(4) \cdot 1251$		
				- I fouuction and		$125(4).1231^{-1}$		
						(IF=0.43)		
	10.2	Dortic	ination in scientif	c national and inter	mational projects ($\frac{(11 0, 75)}{(11 0, 75)}$		
	10.2.	No	Author		mational projects (u	p to 5) Dublisher/year		
		1 1	Aution	Applicatio of ioniz	zing Irradiation in	2018_2019		
		1.	Grazdana	Napotechnology f	or FNV energy	2010-2017		
			V IAEA	$(M\Delta K^2 \cap 1 \in \Omega \cap S)$	JI LINY, CHOIGY,			
		2	v, IALA Anita Grazdanov	COMMON CENT	SE	2013 2017		
		۷.	FP7			2013-2017		
		3	Anita Grozdanov	NMP_TeAm		2012-2014		
		5.	FP7			2012-2017		
			/					

	10.3.	Printe	Printed books in the last five years (up to 5)							
		No.	Author		Title		Publishe	er/year		
		1.						•		
	10.4.	Printe	ed professional papers in	n the	last 5 years (up	to 5)				
		No.	Author	Titl	e		Publishe	er/year		
		1.	Anita Grozdanov	Re	moval of Heavy	Metal	Interna	tional		
				Ion	s from Wastewa	ter using	Confer.	on		
				Bio	- and Nanosorbe	ents	Micropl	astic		
							Pollutio	n in the		
							Mediter	anean Sea,		
							Springe	r Water,		
							(2018)			
		2.	Anita Grozdanov	Po	lymer modified	cement bricks	Materia	l and		
				bas	ed on Fly Ash		Environ	ment		
							Protecti	on, 1, 24-30		
							(2016)			
		3.	Anita Grozdanov	Functionalization and			Acta Ph	ysica		
				Cha	aracterization of	MWCNT	Polonic	a, 129, 3,		
				Pro	duced by Differ	ent Method	405-408	8 (2016)		
							(IF=0,5	3)		
		4.	Anita Grozdanov	Risks and Health effects from		fects from	J. Chem	. Technol. &		
				exp	osure to engine	ered	Metall	50, 2, 117-		
				nan	ostructures		134 (20	15)		
		5	Anita Grozdanov	Po	lvmer Nanocom	posite Films	Applied	Mechanics		
		5.		wit	h Functionalized	MWCNTs	and Mat	terials 328		
							778-783	(2013)		
11.	Super	vision	(mentorship) of undergr	adua	te. master and d	octoral studies s	tudents	()		
	11.1.	Under	rgraduate		Over 20					
	11.2.	Maste	er		Over 2					
	11.3.	Docto	oral		Over 2					
12.	For m	entors	of doctoral thesis, select	ed w	ork for the last f	our / five years				
	12.1.	Proof	of printed scientific paper	pers i	n international s	cientific journal	s or			
		interr	national publications in	the re	elated field (up t	o 6) in the past	five years	6		
		No.	Author		Title		Publishe	er/year		
		1.								
	12.2.	Proof	of at least two printed s	scient	tific papers in in	ternational scier	ntific jour	nals that		
		have	impact factor in the rel	ated :	field in the past	five years	D 1 1' 1			
		No.	Author		Title		Publishe	er/year		
	10 0	1. Dread	Cof at logat three interes	tions	1 maatin aa?	aination in the	l and form	100*2		
	12.3.	Prool	Author		i meetings part	Internetion In the p	ol four	years		
		190.	Autior	1111	C	meeting/22	al nforence	year		
		1.								

Add. 4		Information about the teachers that lecture at the first, second and third study program and are mentors on the doctoral thesis				
1.	Name	(First, Last)	Valentina Gecevska			
2.	Date of	f birth	09.09.1965			

3.	Scient	tific de	egree / Title	Ph.D.			
4.	Title of	of the s	scientific degree	Ph.D. in Technical Scie	ences		
5.	Year	and ins	stitution of	Education	Year	Institution	
	the sc	eientifi	c degree	Ph.D. in	2002	Faculty of	
				Mechanical		Mechanical	
				Engineering		engineering - Skopje	
				M.Sc. in	1995	Faculty of	
				Mechanical		Mechanical	
				Engineering		engineering - Skopje	
				B.Sc. in	1989	Faculty of	
				Mechanical		Mechanical	
				Engineering		engineering - Skopje	
6.	Area,	field a	and particular	Area	Field	Specialty	
	specia	alty of	master of	Technical Sciences	Mechanical	Automation process	
	scienc	e degi	ree		engineering	planning and design	
7.	Area,	field a	and particular	Area	Field	Specialty	
	specia	alty of	doctoral degree	Technical Sciences	Mechanical	Production processes	
	10	1 -	4	.	engineering	and technologies	
8.	If emp	ployed	, state the	Institution	Title and area		
	institu	ition w	here	Ss. Cyril and	Full time profe	ssor	
	he/she	e 1.1	•. 1	Methodius University	Production Eng	gineering and	
	works	s and the second the second s	he title and area	in Skopje, Faculty of	Industrial Engli	neering	
	in wh	ich is i	named	Mechanical			
0	Tint of	•	41 4 41 4 1	Engineering	£	1 41 4 1	
9.	List of	course	es that the teacher	is lecturing separately for	first, second and	a third cycle	
	9.1. List of courses that th			teacher is lecturing in the	Stady and an	···· /·····	
		INO	Course		Study progra		
		1.	Process planning	g and design	Production En	ngineering	
		2.	Engineering eco	nomics	Industrial eng	Industrial engineering and	
					management		
		3.	Management of	new product development	Industrial engineering and		
					management		
		4.	Production techr	nologies	Mechanical E	Ingineering	
	9.2.	List c	of courses that the	teacher is lecturing in the	second cycle		
		No	Course		Study progra	am/institution	
		1.	Advanced produ	ction processes and	Production E	ngineering	
		_	technologies				
		2.	Intelligent produ	iction systems	Production En	ngineering	
					Industrial Neg	gineering and	
		-		1 • 1 •	Management	· ·	
		3.	Automation proc	cess planning design	Production En	ngineering	
					Industrial Neg	gineering and	
		4			Management	1 1 (
		4.	Basic of Product	Lifecycle Management	Product Lifec	ycle Management	
		Э.	Economic of life	e cycle	Product Lifec	ycie Management	
		6.	Environmental s	ustainability	Product Lifec	ycle Management	
		7.	Innovation mana	agement	Product Lifec	cycle Management	
		8.	Quality costs ma	nagement	Quality Mana	agement	
		9.	Processes manag	gement	Management of safety systems		

		10.	Environmental Risk Man	agement	Environ	nental Engineering		
		11.	Management of technolo	gy and	Industria	l engineering, Engineering		
			Management of new proc	duct development	manager	nent/Faculty of Technical		
					Sciences	in Novi Sad		
	9.3.	List	of courses that the teacher	is lecturing in the	third cycle	8		
		No	Course		Study p	orogram/institution		
		1.	Engineering economics a	inalysis	Industrial Engineering and			
		2	Intelligent production sys	stems and	Mechani	cal Engineering		
		2.	processes	stems and	wicenam			
10.	Selecte	ed wor	k in the past five years					
	10.1.	Relev	vant scientific printed pape	rinted paper (up to 5)				
		Ν	Author	Title		Publisher/year		
		0.						
		1.	Gecevska V., Anisic Z.	Lean Product Life	ecycle	Int. Journal of Industrial		
				Management App	oroach	Engineering and		
						Management, Vol.4 N.4,		
						2013, ISSN: 2217-2661, pp.		
						207-214. (<u>Scimago</u>		
		2		Application of the		<u>SJR=0.2)</u>		
		2.	Petkovic D., Gecevska	Application of the		Scientific Journal Facta		
			V., Madic IVI.,	performance selection		Universitatis, series		
			Radovanovic M.	machining MCD	solving	Vol 12 No 12 2014 ISSN		
				machining MCDM		0354 2025		
		3	Gecevska V	Mass Customization as		Int Journal of Innovative		
		5.	Polenakovik R	Aided Value Too	l in New	Research in Science		
			i olonakovik ik.	Product Develop	nent	Engineering and		
				Process		Technology, Vol.4, Issue		
						11, 2015, pp.346-355. ISSN		
						2319-8753. (Global		
						<u>IF=0,544 for 2015)</u>		
		4.	Gecevska V.,	Modelling of Cut	ting	Journal of the Balkan		
			Kuzinovski M., Cus F.,	Tool Wear and C	utting	Tribological Association,		
			Tomov M.	Tool Life for Fac	e	Vol.22, No.3A-I, 2016.		
				Milling Operation	ıs	ISSN: 1310-4772.		
						(WoS SCI journals, <u>IF=0,32</u>		
		-	D 1 1 1 D	.		for 2015)		
		5.	Polenakovik K.,	Innovativeness in	•	Journal of Technical		
			Stankovska I.,	Macedonian Com	ipanies:	Gazzette, Vol.25, No.3,		
			Jovanovski B.,	Evidence from th	e	2018, pp.910-915. (W0S		
			Gecevska v.	Survey	vation	2016)		
	10.2	Partic	cipation in scientific nation	nal and internation	al projects	(up to 5)		
		No	Author	Title	rejeen	Publisher/year		
						5		
		1.	Gecevska V. – project	"Development of	the	International Scientific		
			coordinator for	intelligent based t	tools for	Project financed by the		
			Macedonia, Cus F. –	production proces	sses	Ministry of Education and		
			project coordinator for	management"		Science - Macedonia and		
			Slovenia			the Ministry of Science and		

				Technology-Slovenia,2012- 2014
	2.	Gecevska Vproject coordinator	"Current assistance and lessons learned from international multilateral and bilateral donors in Republic of Macedonia"	World Bank Group, 2014
	3.	Gecevska V. – member of team	"The International Virtual Laboratory for Enterprise Interoperability –Network of Excellence for Networked Enterprise Applications and Software"	FP7 ICT, Contractor: University Bordeaux, France, Oct.2011-Oct.2015
	4.	Gecevska V. – coordinator for Circular Economy Chapter	" Strengthening capacities and mechanisms for supporting Chapter 20 reform processes"	IPA Project, 2015-2018
	5.	Gecevska V. – project coordinator	IoT (Interent of Things) with PLM Application in Agricultural Industry	Macedonian – China bilateral scientific project, 2018-2019
10.3.	Printe	ed books in the last five ye	ars (up to 5)	Dublisher/weer
		Aution		r ublishci/ year
	1.	Cus F., Gecevska V., Chiampo F.	METHOD AND TECHNIQUES FOR INDUSTRIAL DEVELOPMENT	Scientific Monograph, Publishers: Faculty of Mechanical Engineering, University of Maribor, Slovenia & Politecnico di Torino, Italy, September 2015, ISBN 978-961-248- 493-4, 266 p.
	2.	Cus F., Chiampo F., Lombardi F., Gecevska V.	Towards Technical Education on Resources Savings for Industrial Development	Scientific Monograph, Publishers: Faculty of Mechanical Engineering, University of Maribor, Slovenia & Politecnico di Torino, Italy, June 2015, ISBN 978-961-248-488-0, 224 p.
	3.	Cus F., Gecevska V.	"Development of Intelligent and Innovative Tools for Production Process Engineering and Sustainable Management	Scientific Monograph, Publisher: University of Maribor, Slovenia, ISBN 978-961-248-418-7, June 2013, 275 p.
	4.	Cus F., Gecevska V.	Advances in Production and Industrial Engineering	Scientific Monograph, Publisher: University of Maribor Press, Slovenia, ISBN 978-961-286-028-8, April 2017, COBISS.SI-ID

						9154	46369, 252 p.	
	10.4	5. Deriveta	d motoscional nonan	a in the le	x = 5 $x = x = 5$			
	10.4	No	Author	T T	itle	Pul	blisher/year	
		1.	Gecevska V. memb of team	er "W Re for	Vestern Balkan gional R&D Strategy Innovation"	Stra finat and 2013	tegy Document: nced by the World Bank European Commission, 3, 105p.	
		2.	Gecevska V., etc. "Value Stream Ma analysis and impre for the production of electrical equip		Yalue Stream Mapping alysis and improvement the production process electrical equipment	Euro Mul Skoj	ppeAid/127054/C/SER/ ti in third countries, pje, 2013, 75p.	
		3.	Gecevska V., etc.	"F Gr SN	actors for Economic owth of Macedonian ⁄IEs"	Woi	rld Bank, 2014, 155p.	
		4.	Gecevska V.	"E and for bas En	conomical Assessment d Cost Benefit Analysis Production Plant sed on Renewable lergy Sources"	Feas COI Proj	sibility Study, FP7 NCERTO - 239515 ect, 2014, 95p.	
		5.	Gecevska V. etc.	,,,,,, pla int op pro	""BPM for software platform development of internal processes optimization in production company""		EuropeAid/127054/C/SER/ Multi in third countries, Skopje, 2015, 75 p.	
11.	Менто	орства на додипломски, магистерски и докторски студии						
	11.1.	Дипл	омски работи	65				
	11.2.	Маги	стерски работи	20				
12	11.3. 20 Mar	Докт	орски дисертации	4	WOOLUL DONUTOTU DO HOO	HOUL		
12.	<u>за мен</u> 12.1.	Дока или м годин	на докторски трудов з за печатени научн иеѓународни научни ни	оистражу поистражу публика	ирани резултати во пос увачки трудови во меѓу ации во даденото поле (ледн наро, до ш	ите чегири/пет тодини дни научни списанија ест) во последните пет	
		No	Author		Title		Publisher/year	
		1.	Petkovic D., Gecev Madic M., Radovan	ska V., 10vic M.	Application of the performance selection index method for solvin machining MCDM problems	ng	Scientific Journal Facta Universitatis, series Mechanical Engineering, Vol.12, No.12, 2014, ISSN: 0354-2025.	
		2.	Madic M., Gecevsk Radovanovic M., Po D.	a V., etkovic	Multi-Criteria Econom Analysis of Machining Processes Using the WASPAS Method	ic	Journal of Production Engineering, Vol.17, No.2, 2014, ISSN: 1821-4932, 79-82.	
		3.	Jovanovski R.B., G V., Polenakovik R., Sutevski D., Stanko	ecevska ovska I.	WASPAS Method a Business Model as a Success Factor for the Companies Growth		ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering, Tome XIII [2015] – Fascicule	

					3, Augu	st 2015.
	4.	Gecevska V., Caloska J.,	Integration of	Lean	Mechan	ical
		Polenakovik R., Donev V.,	Principles and	Safety	Enginee	ering –
		Jovanovski R. B.	Management S	System	Scientif	ic Journal.
			8	<i>j</i>	Vol.33.	No 3. 2015.
					ISSN 18	357-5293, pp.
					221-225	
	5.	Golcev V., Jovanoski B.,	KANBAN Sin	nulation	Journal	of Engineering
		Gecevska V., Minovski R.	Model for Production		Manage	ment and
			Process Optimization		Compet	titiveness,
					Vol.5, N	No.2, 2015,
					ISSN: 2	217-8147,
					pp.55-6	0.
	6.	Gecevska V., Donev V.,	<u>A Review of</u>		ANNAI	LS of Faculty
		Polenakovik R.	Environmenta	<u>l Tools</u>	Enginee	ering
			towards Sustai	inable	Hunedo	ara –
			<u>Development</u>		Internat	ional Journal of
					Enginee	ering, Vol.14,
					No.1, 20	016, ISSN:
10.0	Π	·			1584-26	065.
12.2.	Дока	з за најмалку два печатени н	аучноистражув	вачки трудови	и во мегу Колинта г	народни
	и	ни списанија со импакт факт	ор во даденото	поле во посл	Издаран	и/голица
	v 1	Coorusto V. Kuzinovski	Modelling of Cutting Tool		Талина	of the Dellrer
	1.	Gecevska V., Kuzinovski			Journal of the Balkan	
		MI., CUS F., TOMOV MI.	Wear and Cull	Ailling		gical
			Cherotiana	viiling	Associa	1001, V01.22,
			Operations		N0.3A-	1, 2010, 2025 ISSNI
					pp.3013	-3023. 1881N:
					1510-4/ SciDul(72, <u>Publ.</u>
					<u>Scibul</u>	<u>Jin Was sci</u>
					iournals	U III W 03 SCI
	2	Gaaayska V. Donay V	Mass Customi	zation as	Journals	$\frac{\Pi - 0,755}{2}$
	∠.	Polenakovik R	Aided Value T	Cool in New	Innovet	ive Research in
			Product Devel	onment	Science	Fngineering
			Process	opmon	and Teo	hnology
			1100035			111010gy,
					nn 346	355 ISSN
					2319_87	753 [Global
					IF=1.76	2 for 2015]
10.0					<u></u> 1,70	_ 101 _010]
12.3.	Дока	з за најмалку три учества на	мегународни с	обири во пос	ледните	четири години
	INO	Aumor	11110	Internationa	11 • for	year
	•			meeting/col	nerenc	
	1	Gecevska V	Application	Proceedings	of 7 th	2015
	1.		of the	International		2013
			Analytical	Conference	of	
			Hierachy	Managemen	t of	
			Process for	Technology	Sten to	
			Decision	Sustainable	Step to	
			Making	Production		
	<u> </u>		IVIANIIS	1 Iouuction		

			During Raw	(MOTSP'2015)	
			Matarial	10101012010),	
			Material	June 2015.	
			Selection		
			Process		
	2.	Gecevska V.	Product	International	2016
			Lifecycle	Scientific	
			Management	Conference Industry	
			Concept as a	4.0 (INDUSTRY	
			Data	4.0 – 2016),	
			Management	December 2016.	
			Tool for		
			Industry 4.0		
	3.	Gecevska V.	Module	8th International	2018
			Based Digital	Scientific	
			Structure of	Conference Mass	
			Management	Customization &	
			Information	Personalization -	
			System	Comunity of	
				Europe:	
				Digitalization	
				(MCP-CE 2018	
				Conference),	
				September 2018.	

Ado	1.4	Information abo	out the teachers that	lecture at th	ne first, se	cond and third
		S	tudy program and a	<u>ire mentors</u>	on the do	octoral thesis
1.	Name (F	irst, Last)	Ljubomir Drakulevsk	ci 👘 👘		
2.	Date of b	oirth	06 June , 1962			
3.	Scientific	e degree / Title	Ph.D.			
4.	Title of t	he scientific degree	Ph.D. in Economics			
5.	Year and	l institution of	Education	Year		Institution
	the scien	tific degree	Ph.D in	1998		Faculty of
	_		Economics			Economics-Skopje
			M. Sc. in	1995		Faculty of
			Economics			Economics-Skopje
			B. Sc. in	1987		Faculty of
			Economics			Economics-Skopje
6.	Area, fie	ld and particular	Area	Field		Specialty
	specialty	of master of	Economics	Managem	ent	Strategic
	science of	legree				management
7.	Area, fie	ld and area of	Area	Field		Specialty
	doctoral	degree	Economics	Managem	ent	Leadership - A Basis
						for Effective Strategic
						Management
						wianagement
8.	If employ	yed, state the	Institution	•	Title and	area

	institution where		Ss. Cyril and Methodius		Full time professor			
	he/she	;		University in Skopje				
	works and the title and area		Faculty of Economics-					
	in whi	ich is n	amed	Skopje				
•	List of	f course	es that the teacher	is lecturi	ng separate	ely for first, se	econd and	third cycle
	9.1.	List o	f courses that the	teacher is	lecturing	n the first cyc	ele	
	No. Course					Study progr	am/institu	tion
		1.	International M	anagemen	nt	Managemen	it	
		2.	Strategic Manag	gement		Managemen	lt Einen al 11	Managant
		3.	Organizational	Behavior		Marketing,	Financial	Management,
						Trade Man	alla Audit	Economics E business
	92	Listo	f courses that the	teacher is	lecturing	in the second	cvcle	Economics, E-ousiness
	9.2.	No.	Course		rectaring	Study progr	am/institu	tion
		1.	Strategic Manag	pement		MBA-Mana	gement	
		2.	Organizational	Behaviou	r	MBA-Mana	gement. A	Accounting and audit
			8			(two years s	studies), S	trategic management
						of human re	sources	6 6
		3.	Corporate gove	rnance		Managing th	ne public s	sector, Strategic
						managemen	t of huma	n resources
		4.	Strategic Manag	gement of E-		E-Business	Management, E-business	
			Business			management (two years studies)		
	9.3.	List o	f courses that the	teacher is lecturing in		in the third cycle		
		No.	Course			Study progr	am/institu	tion
		1.	Strategic manag	gement		Organizational science and management		
		2.	International ma	anagemen	t	Organization	nal science	e and management
		3.	Organizational	behavior		Organization	nal science	e and management
10	Selecte	ed worl	in the past five y	vears				
10.	10.1.	Relev	ant scientific prin	ted paper	(up to 5)			
	10111	No.	Author	Title			Publisher/year	
		1.	Boskov, T. and		Strategic	and Finance		Calitatea-acces la
			Drakulevski, L		Managem	ent–Determin	ing	success (Quality-
					Factors for	r the Success	of the	Access to
					Companie	s in the Busin	iess	Success), 18(157),
					Worldpp.1	19-123.		2017
		2	Drakulevski Li	Nakov I.	"Business	Model for F	Diagnosing	Proceedings from the
		2.	Diakaievski, Lj.	, TUROV L	and Chang	ving the Orga	nizational	10th International
					Culture",	588-		Scientific Conference
					,			– Economic
								(2015), Integration,
								Competition and
								Cooperation, Faculty
								of Economics – Rijeka
								an d 24 Co-organizers,
								22-24 April, Opatija,
								Croatia, pp./1-82.

	3.	Drakulevski, Lj, Nakov,L., Ivanovski ,I.("Managerial influence of the Model of Open Innovation towards Organizational Development: Comparative analyses from the advanced national economies",	CIK-MIT Conference Proceedings 2017, MIT, Boston, USA, p.92-111			
	4.						
	5.						
10.2.	Partic	cipation in scientific nation	al and international projects (up to	5)			
	No. 1.	Author Drakulevski Lj.	Title PoSsible project funded by Erasmus+	Publisher/year 2016-2018			
	2.						
	3.						
10.3.	Printed books in the last five years (up to 5)						
	No.	Author	Title	Publisher/year			
		Drakulevski Lj.	Organization	2013, 2014			
		Drakulevski Lj.	Leadership	2015			
10.4.	Printe	ed professional papers in the	1				
	No.	Author	Title	Publisher/year			
	1.	Drakulevski, L, Ilieva, V., Brudermann, T.	I"Yes, we know!"(Over) confidence in general knowledge among Austrian entrepreneurs.	<i>PloS one</i> , <i>13</i> (5), p.e0197085., 2018			
	2.	Drakulevski, L. and Veshoska, A.T	The influence of spiritual intelligence on ethical behavior in Macedonian organizations.	Rome, Universitas Mercatorum, pp.1- 15.21-25. 2015			
	3.	Drakulevski, L., Debarliev, S., Janeska- Iliev, A. and Taneva- Veshovska, A.,	A story on leadership styles from Macedonian companies: components of transformational vs. transactional leadership influenced by aspects of emotional intelligence.	Ecoforum journal, 6(2)., 2017.			
	4.	Drakulevski, L. and Nakov, L	.,Strategic Approaches to Creating and Developing the Concept of Business Integrity.	<i>STRATEGIC</i> <i>MANAGEMENT</i> , 2 <i>1</i> (2), pp.23-31. 2016			

1	I	5	Drakulevski Li Nako	vI "O	rganizational Fl	evibility and	Proceed	lings from the
		5.	Diakulevski, Lj., Nako	VL. O	nge for Ma	enaging the	o th	International
				Buc	inge for Ma	unaging the	7 Sciontif	ic Conference
				Du: Ista	mbul Q_10 An	y, Cluatia,	on E	conomic and
				1510	illoui, J-10 Ap	in, pp. ++2-	on Et Social	Development
				430	•		VADE	Jevelopmeni,
							VADEA	1 nn 142 450
							2015	i, pp. 442-430.
11	Super	vision ((mentorship) of undergr	aduate	master and doct	oral studies st	udents	
11.	11 1	Under	oraduate	addate,	Over 85	ordi studies st	udents	
	11.2	Maste	r		Over 50			
	11.2.	Docto	ral		Over 15			
12.	For m	entors of	of doctoral thesis, select	ed work	for the last four	·/ five years		
121	12.1.	Proof	of printed scientific par	pers in i	nternational scie	ntific journals	or	
		intern	ational publications in	the rela	ted field (up to 6) in the past f	ive vears	5
		No.	Author	T	itle	<i>, , .</i>	Publish	ner/vear
		1.						2
	12.2.	Proof	of at least two printed s	cientifi	c papers in inter	national scient	tific jour	mals that
		have	impact factor in the rela	ated fiel	d in the past five	e years	5	
		No.	Author	Т	itle		Publisł	ner/year
		1.						-
	12.3.	Proof	of at least three international	tional n	eetings' particip	pation in the p	ast four	years
		No.	Author	Title		Internationa	1	year
						meeting/cor	ferenc	
		1.						

Add. 4		Information about the teachers that lecture at the first, second and third							
		SI	tudy p	rogram and a	re mentors	on the	doctoral thesis		
1.	Name (Fi	irst, Last)	Jovana	a Jovanova					
2.	Date of b	oirth	Augus	st 04, 1985					
3.	Scientific	e degree / Title	Ph.D.						
4.	Title of t	he scientific degree	Ph.D.	in Technical Se	ciences				
5.	Year and	institution of	Educa	tion	Year		Institution		
	the scient	tific degree	Ph.D	in	2015		Faculty of		
			Mecha	anical			Mechanical		
			M. Sc. in		2010		Faculty of		
			Mechanical				Mechanical		
			Engineerin				engineering - Skopje		
			B. Sc. in		2008		Faculty of		
			Mechanical				Mechanical		
			Engineerin				engineering - Skopje		
6.	Area, fiel	d and particular	Area		Field		Specialty		
	specialty	of master of	Techn	ical sciences	Mechanical		Mechatronics		
	science degree				engineering				
7.	Area, fiel	d and area of	Area		Field		Specialty		
	doctoral degree		Tech Mechcanical		Mec		echanical systems		
			nical	engineering					
8.	If employ	yed, state the	Institu	ition		Title a	ind area		

	institution where		UKIM, Faculty of			Assistant professor in		
	he/she	e works	and the	Mech	anical Engine	ering	Mechanical systems	
	title a	nd area	in which					
	is nam	ned	.11	• 1 .	•		1 1.1 1 1	
•	List of	t cours	es that the teacher	1s lect	uring separate	ly for first, se	cond and third cycle	
	9.1.	List o	t courses that the	teacher	s is lecturing i	n the first cyc	e /:	
		NO.	Course Nachanica 2			Study progra	m/institution	
		1.	Mechanics 2			Mechanical e	engineering	
		2.	Introduction to 1	mechat	ronics	V semester / engineering	Faculty of Mechanical	
		3.	Mechanisms in	robotic	S	VII semester Mechanical e	, Mechatronics / Faculty of engineering	
		4.	Strength of mate	erials		All academic Mechanical e	programs at the Faculty of ngineering	
		5.	Basics of mecha	atronics	s systems	All academic Mechanical e	programs at the Faculty of engineering	
	9.2.	List o	f courses that the	teacher	is lecturing i	n the second c	ycle	
		No.	Course			Study program/institution		
		1.	Applied mechanics			Mechanics and mechanical systems		
		2.	Modelling and s	simulation of		Mechanics and mechanical		
		-	mechatronics sy	vstems		systems/Mec	hatronics	
		3.	Experimental re	search,		Mechanics and mechanical systems		
			measurements a	nd data	a processing			
		4.	Sensors and actu	uators		Mechanics and mechanical		
		-		· · · ·		systems/Mechatronics		
		Э.	Design of mech	atronics systems		Mechanics and mechanical		
	93	Listo	f courses that the	teacher	· is lecturing i	h the third cycle		
	<i>J</i> . <i>J</i> .	No.	Course	teacher	is rectaining i	Study program/institution		
		1.				program instruction		
		2.						
10.	Selecte	ed wor	k in the past five y	/ears				
	10.1.	Relev	ant scientific prin	ted pap	er (up to 5)			
	No. Author 1. Jovanova J., Free M., Hamilton R.			Title		Publisher/year		
			cker	Target shap	e optimization	Journal of intelligent		
			F.,	of functiona	lly graded	Material Systems and		
		complian		compliant m	echanisms	Structures, October 2017		
	2 Jovanova I. Gav		Jovanova J., Gav	riloski	Analytical	an	d Journal of	
			V		experimenta	l modeling of	a vibroengineering, vol.16,	
					smart beam	0	Issue 7, pp 3409-3418, ISSN 1392 - 8716	

	3. 4. 5.	Jovanova J., Frecker M., Nastevska. A. Jovanova J., Frecker M., Domazetovska S. Jovanova J., Gavriloski	Functionally graded cellular contact-aided compliant mechanism for energy absorbing Modeling of the interface of functionally graded superelastic zones in compliant deployable structures. Modular origami robot	ASME 2018 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, SMASIS2018-8175 ASME 2018 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, SMASIS2018- 8176 ASME 2018 Conference on
	5.	V.,Anachkova M.	inspired from a scorpion tail.	Smart Materials, Adaptive Structures and Intelligent Systems. SMASIS2018- 8177
10.2.	Partio No. 1.	cipation in scientific nati Author Emilija Celakoska, Jovana Jovanova	onal and international projects Title Model constructon for selecting important information from real non- linear problems	(up to 5) Publisher/year 2018
	2.			
10.3.	Printe No. 1.	ed books in the last five y Author Јована Јованова, Маја Аначкова	ears (up to 5) Title Кинематика и динамика	Publisher/year Интерна скрипта, 2017
	2.	Јована Јованова, Виктор Гаврилоски и др.	Uvod u mehatroniku	ISBN 978-9940-527-30-3
10.4.	Printe No. 1.	ed professional papers in Author	the last 5 years (up to 5) Title	Publisher/year
	2. 3. 4.			

		5.						
11.	Super	vision (mentorship) of undergr	aduate, master and doc	toral stu	dies students		
	11.1.	Under	graduate	9				
	11.2.	Master	r	0				
	11.3.	Doctor	ral	0				
12.	For me	nentors of doctoral thesis, selected work for the last four / five years						
	12.1.	Proof	of printed scientific pap	pers in international sci	entific jo	ournals or		
		international publications in the related field (up to 6) in the past five years						
		No.	Author	Title		Publisher/year	ſ	
		1.						
	12.2.	Proof	of at least two printed s	scientific papers in inter	rnational	l scientific jour	nals that	
		have	impact factor in the rela	ated field in the past fiv	ve years			
		No.	Author	Title		Publisher/year	ſ	
		1.						
	12.3.	Proof	of at least three internation	tional meetings' partici	pation in	n the past four	years	
		No.	Author	Title	Intern	national	year	
					meeti	ing/conferenc		
		1.						

Add. 4		Information about the teachers that lecture at the first, second and third						
		st	udy program and are	mentors	on the d	loctoral thesis		
1.	Name (Fi	irst, Last)	Robert Minovski					
2.	Date of b	irth	20.11.1964					
3.	Scientific	e degree / Title	Ph.D.					
4.	Title of t	he scientific degree	Ph.D. in Technical Scie	ences				
5.	Year and	institution of	Education	Year		Institution		
	the scient	tific degree	PhD in Technical	19	99	Faculty of		
			Sciences			Mechanical		
						engineering - Skopje		
			M.Sc. in	19	94	Faculty of		
			Mechanical			Mechanical		
			Engineering			engineering - Skopje		
					20			
			B.Sc. in		89	Faculty of		
			Mechanical			Mechanical		
			Engineering			engineering - Skopje		
6.	Area, fiel	d and particular	Area	Field		Specialty		
	specialty	of master of	Technical sciences	Mechanical				
	science d	egree		Enginee	ring			
7.	Area, fiel	d and area of	Area	Field		Specialty		
	doctoral	degree	Technical sciences	Industria	al			
			Eng		ring			
			and		C			
8.	If employed, state the		Institution		Title and area			
	institution where		UKIM, Faculty of		Full time professor			
	he/she we	orks and the	Mechanical Engineerin	ıg	Mechanical			
	title and a	area in which		0	enginee	ering		
	is named							
9.	List of	Courses that the teacher is lecturing separately for first, second and third cycle						
-----	---------	--	---------------------------------	---------------------------------------	---------------------------------------	------------------------	--	
	9.1.	List c	of courses that the teacher is	lecturing i	in the first cycle			
		No.	Course		Study program/instit	tution		
		1.	Design of Information Sy	stems	Industrial Engineerin	ng and Management		
		2.	Management of Informati	on	Industrial Engineering and Management			
		3.	Work Study		Industrial Engineering and Management			
		4.	Production Systems		Industrial Engineering and Management			
	9.2.	List c	of courses that the teacher is	lecturing	in the second cycle			
		No.	Course		Study program/institution			
		1.	Business Information Systems		Industrial Engineering and Management			
		2.	Restructuring of Organiza	ations	Industrial Engineering and Management			
		3.	Contemporary Production	n Systems	Industrial Engineerin	ng and Management		
		4.	Motivation and Compensa	ation	Industrial Engineerin	ng and Management		
			Systems					
	9.3.	List c	of courses that the teacher is	courses that the teacher is lecturing				
		No.	Course		Study program/instit	tution		
		1.	Performance Measurement Systems		Industrial Engineerin	ng and Management		
		2.	Integrated Quality	Integrated Quality		ng and Management		
		-	Management processes	Management processes		1.5.5		
		3.	Approaches for modeling		Industrial Engineerin	ng and Management		
		4	and Simulation of					
		4.	Managerial production		Industrial Engineerin	ng and Management		
10	Calast.	1	philosophies					
10.		D alar	k in the past live years	(up to 5)				
	10.1.	No	Author	(up to 5)		Dublisher/waar		
		1	R Lovenoski R	Managin	a strateav and	Iournal of Industrial		
		1.	Minovski, S. Voessner	production through		Management & Data		
			and G. Lichtenegger	hybrid		Systems 113(8): 1110-		
				Simulati	on	1132/2013		
		2.	B. Jovanoski, R.	Modellin	g and Simulation of	Development of		
			Minovski, D. Jovanoski	Business	Processes: Review	Intelligent		
				and Reco	mmendations	and Innovative Tools		
						for Production Process		
						Engineering and		
						Sustainable		
						Management,		
						Scientific Monography,		
						Chapter 8, p.p. 81-96,		
						Maribor-Skopje/2013		
		3.	B. Jovanovski, R.	Combini	ng system dynamics	Journal of Applied		
			Minovski, S. Voessner	and discu	rete event	Engineering Science,		
			and G. Lichtenegger	simulatio	ns - overview of	Vol.		
				hybrid sin	nulation models	10 No. 3, pp. 135–		
				-		142/2013		
		4.	S. Srebrenkoska, A.	Six sigma	a and design of	Journal for Technology		
			Kochov, R. Minovski	experime	nts for improving the	of Plasticity, Vol.		
				productio	on of composite pipes	41(2016), Number 2,		
						pp.11-18		
1								

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		Ž. Kotevski, B. Jovanoski, R. Minovski	Simulation model for improved production planning and control through quality, cycle time and batch size management	Journal of Engineering Management and Competitiveness, Vol. 5, No. 1, 2015, pp. 40- 45
	5.	B. Jovanoski, R. Minovski, S. Voessner and G. Lichtenegger	Managing strategy and production through hybrid Simulation	Journal of Industrial Management & Data Systems 113(8): 1110- 1132/2013
10.2.	Parti	cipation in scientific nation	al and international projects (up	to 5)
	No.	Author	Title	Publisher/year
	1.	R. Minovski et al.	Strategic Decision Support	Macedonian-Austrian bilateral scientific project / 2011-2013
	2.	R. Minovski et al.	Adaptation of different simulations models for certain functional needs	University of Ss. Cyril and Methodius in Skopje/2012-2013
	3.	M. Klarin, R. Minovski et al.	Development of Stochastic Model for Determination of the Elements of the Working Time of the Production Cycle and their Optimization for Batch Production in the Metalworking Industry and Recycling Processes	Ministry of Science and Technological Development of Serbia / 2011-
10.3.	Print	ted books in the last five yea	rs (up to 5)	
	No.	Author	Title	Publisher/year
	1.	Р. Миновски Р. Миновски	Менаџмент информациски Виртуелна фирма	УКИМ / во печат Поглавје во книгата "Како до сопствен бизнс", второ издание, УКИМ- БСЦ принт, стр. 301-324/2012
		Р. Миновски, Б. Јованоски	PLM Информациски системи	Машински факултет, Скопје, интерна скрипта / 2012
10.4.	Print	ted professional papers in th	e last 5 years (up to 5)	
	No. 1.	Author B. Jovanoski, R. Polenakovik, V. Gecevska, R. Minovski	TitleApplying a suitablesimulation approach forprocesses on differentmanagement levels	Publisher/year Proceedings of 16 th Industrial Systems Conference pp. 327- 333 / 2014

		2.	Stanisavljev, S., Stojanovic, Z., Minovski, R., Jovanoski, B., & Zakin, M	The Elements of production cycle time in serial production	9th International Multidiciplinary Scientific Conference - EUROBRAND, Zrenjanin, Serbia / 2014
		3.	M. Stanojeska, R. Minovski and B. Jovanoski	Employee Motivation as an Initiator In Improving the State of QMS – Literature Review	International Conference on Innovative Technologies IN- TECH 2016, pp. 67- 71/2016, Prague, Chech Republic
		4.	Stanojeska, M., Minovski, R., Sajfert, Z., Ćoćkalo, D., Stanisavljev, S., Jovanoski, B.	Employees Motivation and Transition OF ISO 9001 QMS Towards TQM	6th International Symposium on Industrial Engineering - SIE, Belgrade, Serbia / 2015
		5.	Stanojeska, M., Minovski, R., Jovanoski, B.	Management Role in Improving the State Of QMS through Managing of Employee Motivation	VI International Symposium Engineering Management and Competitiveness 2016 (EMC 2016), Kotor, Montenegro
11.	Super	vision	(mentorship) of undergradua	ate, master and doctoral studies	students
	11.1.	Unde	rgraduate	Over 20	
	11.2.	Maste	21	Over 10	
12	11.3. For m	Docto	oral	3	
12.	12 1	Proof	of unctoral thesis, selected w	in international scientific journa	als or
	12.1.	interr	national publications in the i	related field (up to 6) in the past	five years
		No.	Author	Title	Publisher/year
		1.	B. Jovanoski, R.	Managing strategy and	Journal of Industrial
			Minovski, S. Voessner and	production through hybrid	Management & Data
			G. Lichtenegger	simulation	1132/2013
		2.	Lj. Gjergjeska, V. Gecevska, R. Minovski	Application of Artificial Neural Networks for Improving Contemporary Business Systems	Development of Intelligent and Innovative Tools for Production Process Engineering and Sustainable Management, Scientific Monography, Chapter 10, p.p. 110- 131, Maribor-Skopje/2013

	3.	B. Jovanoski, R. Minovski, D. Jovanoski	i	Modelling and Sim Business Processes: and Recommendatio	ulation of Review ons	Developm Intelligent and Innova Production Engineering Sustainable Managemen Monograph p.p. 81-96, Skopje/201	tive Tools for Process g and nt, Scientific ny, Chapter 8, Maribor- 3
	4.	S.Stanisavljev, D. Ćoćk D. Đorđević, R. Minovs	alo, ski	The production cycl serial production: re the duration in meta processing industry	e time in duction of l case	Journal of A Engineering 2013, vol. 1 115-122 / 2	Applied g Science, 11, No. 3, pp. 2013
	5.	D. Ćoćkalo, D. Đorđevi S. Bogetić, D. Sajfert, F Minovski	ić, ₹.	Quality of Business, Entrepreneurship Ec and Business start u Intentions Among S Serbia: Research Re	lucation p tudents in sults	Journal "In Vol.41, No 145 / 2013	dustrija", .3, pp. 135-
	6.	B. Jovanoski, R. Minov D. Jovanoski	rski,	Modelling and Simu Business Processes: and Recommendatic Development of Inte and Innovative Tool Production Process Engineering and Sus	Ilation of Review ons, elligent s for stainable	Scientific N Chapter 8, j Maribor-Sk	Monography, p.p. 81-96, copje / 2013
12.2.	Proof have	of at least two printed se impact factor in the rela	cien ited	tific papers in intern field in the past five	ational scie years	entific journa	als that
	No.	Author		Title		Publisher/	year
	1.	B. Jovanoski, R. Minovski, S. Voessner and G. Lichtenegger	•	Managing strategy production through hybrid simulation	and	Journal of Manageme Systems 1 1132/2013	Industrial ent & Data 13(8): 1110-
	2.	B. Jovanovski, R. Minovski, D. Jovanoski		Assessment of the Replacement Using Simulation	Press	Journal for of Plasticity, (2012), Nu pp. 161- 171/2012	r Technology Vol. 37 umber 2,
	3.	D. Jovanoski, R.Minovski, G. Kostovska, B. Jovanovs	ski	Modeling & Simula Tools for Optimisa Material Flow in Pr Systems	ation as tion of roduction	Journal for of Plastici (2012), Number 1, 34/2012	r Technology ty, Vol. 37 pp. 23-
	4.	R. Minovski, B. Jovano P. Galevski	oski,	Lean implementatio implications: experi Macedonia	n and ences from	Internationa Lean Six S (accepted for publishing)	al Journal of igma or
12.3.	Proof	of at least three internat	iona	l meetings' participa	tion in the	past four ye	ears
	No.	Author	Tit	le	Internation meeting/c	nal onference	year

1.	M. Stanojeska, R. Minovski and B. Jovanoski	Employee Motivation as an Initiator In Improving the State of QMS – Literature Review	International Conference on Innovative Technologies IN- TECH 2016, pp. 67-71/2016, Prague, Chech Republic	2016
2.	B. Jovanoski, R. Minovski, G. Lichtenegger, S. Voessner	Hybrid modeling of strategy and production in the manufacturing industry - taking the best from system dynamics and discrete event simulation	In M. Klumpp, ed. Proceedings of the 2012 European Simulation and Modelling Conference. Essen, Germany, Oct. 22- 24: EUROSIS, pp. 274-282	2012
3.	Mucha, B. Jovanoski, R. Minovski, V. Gechevska	Simulation Module For Production Planning And Control	Proceedings of the II International Scientific Conference, High Technologies, Business, Society, pp., 171-174	2017

Add.	. 4	Info	rmation about t	he teachers that lectu	re at the firs	t, second and third	
		stud	y program and	l are mentors on the d	loctoral thesi	is	
1.	Name (First, L	.ast)	Emilija Celakoska			
2.	Date of	birth		November 13, 1975			
3.	Scientific degree / Title			Ph.D.			
4.	Title of the scientific degree			Ph.D. in Mathematical	Sciences		
5.	Year ar	nd instit	ution of the	Education	Year	Institution	
	scientif	ic degr	ee	Ph.D in	2015	Faculty of Natural	
				Mathematical		Sciences and Mathematics	
				M. Sc. in	2012	Faculty of Natural	
				Mathematical		Sciences and Mathematics	
				B. Sc. in	2006	Faculty of Natural	
				Mathematics		Sciences and Mathematics	
6.	Area, fi	ield and	l particular	Area	Field	Specialty	
	specialt	y of ma	aster of science	Natural and	Mathematics	Analysis and Functional	
	degree			Mathematical sciences		Analysis	
7.	Area, fi	eld and	l area of	Area	Field	Specialty	
	doctora	l degre	e	Mathematical sciences	Mathematics	Graph Theory	
8.	If empl	oyed, s	tate the	Institution		Title and area	
	instituti	on whe	ere he/she	UKIM, Faculty of Me	chanical	Assistant Professor	
	works a	and the	title and area in	Engineering		Mathematics	
0	which i	s name	<u>d</u>		C C	. 1 1 41	
9.	LIST OI	$\frac{\text{courses}}{1}$	that the teacher	is lecturing separately	for first, second	nd and third cycle	
	9.1.	List of	courses that the t	eacher is lecturing in th	ne first cycle	/• ,•, ,•	
		<u>NO.</u>	Course		Study prog	gram/institution	
		1.	Mathematics 1		All		

		2.	Mathematics 2			All	
	9.2.	List of	f courses that the teache	r is le	ecturing in the	second cyc	ele
		No.	Course			Study prog	gram/institution
		1.	Probability Models an	d Sir	nulations	Mechatron	nics
		2	Selected Topics in Pro	babi	lity and	Menagament of Product Life Cycle	
		3.	Probability and Statist	Probability and Statistics			e Energy and Environment
	9.3.	List of	f courses that the teache	r is 16	ecturing in the	third cycle	
	2.21	No.	Course	1 15 1	ectaring in the	Study prog	ram/institution
		1.				~~~ prog	
10	Salact	ad worl	in the past five years				
10.	10.1	Relev	ant scientific printed par	per (1	(n to 5)		
	10.1.	No	Author	Title	ip to <i>5</i>)		Publisher/vear
		1	M Petruševski	11110	Odd 4-edge-		I Graph Theory Vol. 87
		1.			colorability c	of graphs	(4)
					coloraonity c	n graphs	pp . 460-474, (2018)
		2.	B. Lužar.		On vertex-pa	rity edge-	J. Comb. Optim. Vol. 35
			M. Petruševski,		colorings	ing eage	(2)
			R. Škrekovski				pp. 373-388, (2018)
		3.	M. Petruševski,		A note on	acyclic	Ars Math. Contemp. Vol.
			R. Škrekovski		number of	planar	13, pp . 317-322, (2017)
		4.	R. Atanasov.		Odd edge-co	lorability	Ars Math. Contemp. Vol.
			M. Petruševski,		of subcubic g	graphs	10 (2), pp . 359-370,
			R. Škrekovski				(2016)
		5.	A. Harutyunyan,		Mapping plan	nar	Disc. Math. Vol. 339 (2),
			R. Naserasr,		graphs into th	ne	pp. 839-849, (2016).
			M. Petruševski,		Coxeter grap	h	
			R. Škrekovski,				
			Q. Sun				
	10.2.	Partici	ipation in scientific nati	ional	and internation	nal projects	s (up to 5)
		No.	Author	Fitle			Publisher/year
		1.					
		2.					
	10.3.	Printe	d books in the last five y	years	(up to 5)		
		No.	Author	Title			Publisher/year
		1.					
	10.4.	Printe	d professional papers in	the l	ast 5 years (up	to 5)	
		No.	Author	Title	2 (1	,	Publisher/year
		1.					
		2.					
		3.					
11.	Superv	vision (mentorship) of undergra	aduat	e, master and o	doctoral stu	idies students
	11.1.	Under	graduate				
	11.2.	Maste	r				
10	<u>11.3.</u>	Docto	ral	1		<u> </u>	
12.	For me	entors c	of doctoral thesis, selected	ed wo	ork for the last	iour / five	years
	12.1.	Proof	of printed scientific pap	ers 11	1 international	scientific j	ournals or
		Interna No	Author	ne re	Title	100 (0) 10 the	e past five years
		1 1	Autioi				r uutisiiei/year
1	12.2	1. Proof	of at least two printed a	cient	ific naners in i	nternationa	l scientific journals that
1	12.2.	1 1001 have	impact factor in the role	uted f	ine papers III I	five veer	n scientific journals tilat
1	1	mave	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 international meetings' participation in the past four			rears		
	No.	Author	Title	International	year
				meeting/conference	
	1.				

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Add	Add. 4 Information a		nformation a	bout the teachers tl study program an	hat lecture d are ment	at the f tors on	first, second and third the doctoral thesis		
1.	Name	(Fire	st. I	ast)	Boian Prangoski				
2.	Date o	of bir	rth	<i>ast</i>)	29.7.1984				
3.	Scient	ific of	degr	ee/Title	Ph.D				
4.	Title o	of the	e sci	entific	Ph.D in mathematics				
5.	Year a	nd i	nstit	tution of	Education Year			Institution	
	the sci	the scientific degree		legree	Ph.D in	201	3	Faculty of Sciences.	
	6			mathematics			University of Novi Sad, Serbia		
				M.Sc in mathematics	201	0	Faculty of Sciences, "Ss. Cyril and Methodius" University in Skopje		
					B.Sc in mathematics	2007		Faculty of Sciences, "Ss. Cyril and Methodius" University in Skopje	
6.	Area, field and particular			l particular	Area	Field		Specialty	
	specialty of master of science degree			aster of	Natural Sciences and Mathematics	Mathematics		Analysis and Functional analysis	
7.	Area,	field	l and	l particular	Area	Field		Specialty	
	specia	lty o	of do	octoral degree	Natural Sciences and Mathematics	Mathematics		Analysis and Functional analysis	
8.	If emp	oloye	ed, s	tate	Institution		Title and area		
	the institution where he/she Works and the title and area in which is named			where title and is named	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering		Assist	ant professor, mathematics	
9.	List of	f cou	irses	s that the teach	ner is lecturing separ	ately for fir	rst, seco	nd and third cycle	
	9.1.	Lis No	t of	courses that the Course	he teacher is lecturin	ng in the first Study prog	st cycle ram/ins	titution	
		1.		Linear algebr analysis	a and vector	Motor Veh Logistics; 1 Manufactu Mechanica	icles; T Materia ring En l engine	Transport, Mechanization and ls, Processes and Innovation; gineering/ Faculty of eering - Skopje	
		2.	Numerical methods		ethods	All study programs at the Faculty of Mechanical engineering - Skopje			

		3.	Object oriented progra	amming	Industrial engineering and management / Faculty of Mechanical engineering - Skopje		
	9.2.	List o	f courses that the teache	r is lecturi	ng in the second cycle		
		No.	Course		Study program/ins	titution	
		1.	Advanced computer programming		Mechatronics / Fac engineering - Skop	culty of Mechanical nje	
		2.	Selected topics in App Mathematics	olied	Sustainable Energy Mechanical engine	y and Environment / Faculty of eering - Skopje	
	9.3.	List o	f courses that the teache	r is lecturi	ng in the third cycle		
		No.	Course		Study program/ins	titution	
10.	Select	ed worl	k in the past five years				
	10.1.	Relev	ant scientific printed pap	pers (up to	5)		
		No.	Author	Title		Publisher/year	
		1.	S. Pilipović, B. Prangoski , J. Vindas	On quasianalytic classes of Gelfand–Shilov type. Parametrix and convolution		Journal de Mathématiques Pures et Appliquées, 116 (2018), 174-210, Elsevier (Web Of Science Impact Factor: 1.848)	
		2.	S. Pilipović, B. Prangoski	Complex powers for a class of infinite order hypoelliptic operators		Dissertationes Mathematicae, 529 (2018), 1-58 Polish Academy of Sciences (Web Of Science Impact Factor: 0.68)	
		3.	S. Pilipović, B. Prangoski , J. Vindas	Spectral asymptotics for infinite order pseudo- differential operators		Bulletin of Mathematical Sciences, 8(1) (2018), 81-120 Springer (Web Of Science Impact Factor: 1.333)	
		4.	S. Jakšić, S. Pilipović, B. Prangoski	G-type spaces of ultradistributions over R_+^d and the Weyl pseudo- differential operators with radial symbols		Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas, 111(3) (2017), 613-640, Springer (Web Of Science Impact Factor: 1.074)	
		5.	M. Cappiello, S. Pilipović, B. Prangoski	Semilinear pseudodifferential equations in spaces of tempered ultradistributions		Journal of Mathematical Analysis and Applications, 442(1) (2016), 317-338 Elsevier (Web Of Science Impact Factor: 1.138)	
	10.2.	Partic	pipation in scientific nation	onal and in	nternational projects	(up to5)	
		INO.	Autnor	The		ruonsner/year	

		1.	B. Prangoski , project coordinator from Macedonia; countries: Macedonia, Serbia	``Microlocal analys applications''	sis and Bilateral pro Macedonian Academies Arts, 2016-2	oject between the and Serbian of Sciences and 2017
		2.	B. Prangoski , projec coordinator from Macedonia; countries: Macedonia, Serbia	t ``Microlocal analys applications''	sis and Bilateral pro Macedonian Academies Arts, 2018-2	oject between the and Serbian of Sciences and 2019
	10.3.	Printe	d books in the last five	e years (up to5)		
		No.	Author	Title	Publisher/ye	ar
	10.4	Printe	d professional papers i	in the last 5 years (up t	m(5)	
	10.11	No.	Author	Title	Publisher/ye	ear
11.	Superv	vision (mentorship) of underg	raduate, master and do	octoral studies students	
	11.1.	Under	graduate	0		
	11.2.	Master	•	0		
	11.3.	Doctor	cal	1		
12.	For me	entors o	f doctoral thesis, selec	ted work for the last for	our/five years	
	12.1.	Proof	of printed scientific pa	apers in international so	cientific journals or int	ernational
		public	ations in the related fi	eld (up to 6) in the pas	t five years	
		No.	Author	Title	Publisher/ye	ar
		1				
		2.				
		3.				
		4.				
		5.				
	•	6.				
	12.2.	Proof	of at least two printed	scientific papers in int	ternational scientific jo	urnals that have
		impac	t factor in the related f	ield in the past five ear	rs	
		No.	Author	Title	Publisher/ye	ear
		1.				
		2.				
	12.3.	Proof	of at least three intern	ational meetings' parti	cipation in the past for	ir years
				F [4] -	International	11000
		No.	Author	I itle	meeting/ conference	year
		No.	Author	1 111e	meeting/ conference	year
		No.	Author	1 111e	meeting/ conference	

18. Statement by the teaching staff members on providing consent to participate in the instruction in the frames of certain courses of the study programme

The Statements submitted by the teaching staff members with which they confirm that they agree to participate in teaching of certain courses from the study programme are provided in Annex 4, near the end of the Elaborate.

19. Approval from the higher education institution for the participation of the teaching staff member in the realisation of the study programme

The Approvals from the higher education institution for the participation in the realisation of the study programme of the teaching staff members who are not employed at the Faculty of Mechanical Engineering in Skopje are provided as <u>Annex 5</u>, near the end of the Elaborate.

20. Information on the number of students to be enrolled in the first year of the study programme

Regarding the assessment of the spacial capabilities, the equipment available, and teaching staff potential for the Modeling and simulation of plastic deformation technologies and processes study programme, the maximum number of students to enroll yearly is planned to be 30.

21. Information on the provided compulsory and additional literature

The foreseen compulsory and additional literature (listed in the course programmes – Annex 3) is provided by the course professors, and one part of the literature is at disposal at the Library of the Faculty of Mechanical Engineering in Skopje. Professional literature translated and distributed by the Government of the Republic of Macedonia shall also be used for course programmes where stated.

22. Information on the web-site

All the information regarding the study programmes of the Faculty of Mechanical Engineering – Skopje are publicly available on the web-site of Faculty of Mechanical Engineering – Skopje: <u>www.mf.edu.mk</u>.

23. Professional or scientific title awarded to students upon completion of the study programme

A student who shall successfully complete the university studies of second cycle, one-year studies, MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES study programme, shall be awarded the title:

In Macedonian:

Магистер по машинството - Моделирање и симулација на процеси и технологии за пластична деформација

In English:

Master of science in mechanical engineering - Modeling and simulation of plastic deformation

The studentsshall receive Diploma and Diploma Supplement pursuant to the Rulebook on the Content and the Form of the Diploma, Guidelines for Preparation of the Diploma Supplement and Other Public Documents ("Official Gazette of the Republic of Macedonia" No. 102/2018).

Data on the name of the study programme and the scientific and research area, field, and branch shall be stated in the Diploma and in the Diploma Supplement.

24. Activities and mechanisms for developing and maintaining teaching quality

24.1. Study programme teaching methods

The study programmes shall be realized as full-time studies with the following forms of teaching: lectures, auditory, laboratory, and computer exercises and seminars. Regular classes shall be organised for the courses with 5 and more than 5 registered students. In case the number of students is lower than 5, mentoring will be organised.

The student load shall also be realized through special forms of activities, as individual work on seminal papers and projects intended for studying practical cases from the relevant fields of research to the studies, teamwork, research work, self-study and participation in workshops. Particular attention shall be paid to individual work with students in the form of mentoring and consulting.

The scope and organisation of the studies shall be made pursuant to Article 153 of the Law on Higher Education of the Republic of Macedonia and Article 23 of the Rulebook on the first and second cycle of studies of Ss. Cyril and Methodius University in Skopje in accordance with the ECTS methodology (the Rulebook on the Requirements, Criteria and Regulations for Enrolment and Studying at the First and Second Cycle of University Studies , "University Herald" No. 254/2013), i.e. the total workload of the students is expressed through the volume of 60 credits per year , with 30 hours of work engagement per credit, which is equal to 1,800 hours of annual workload. The number of hours of annual workload allocated to the number of weeks in both semesters, a total of 30 weeks, expresses the total weekly load of students (instruction and activities of special types).

24.2. Methods of evaluation

Evaluation of the acquired knowledge shall be performed by continuous assessment or by final examination. In the course programmes enclosed in item 13 of this document, for each course the manner of evaluation of knowledge and the ratio of evaluation of the continuous assessment activities is determined individually, i.e. the points the student acquires by realizing individual activities defined in the course programme are defined.

The final grade for each of the courses of this study programme shall be formed on the basis of the continuous or final assessment of the results achieved by the student. The final grade shall be formed on the basis of the total number of points from the continuous or final assessment the student has won, with the maximum number of possible points won being 100. The evaluation shall be performed in accordance with Article 35 of the Rulebook on the first and second cycle of studies of Ss. Cyril and Methodius University in Skopje (the Rulebook on the Requirements, Criteria and Regulations for Enrolment and Studying at the First and Second Cycle of University Studies , "University Herald" No. 254/2013), with application of the numerical assessment system and following the equivalences with the alphabetical grading system of the ECTS.

The student masters the study programme by passing the exams, thus earning a certain number of ECTS credits, in accordance with the structure of the study programme.

24.3. Activities and mechanisms for developing and maintaining the quality of the study programme

In order to develop and maintain the quality and the quality control, methods of continuous evaluation, self-evaluation and system for assessing the quality of the teaching staff will be implemented in the frames of the study programmes, in accordance with the provisions of the Law

on Higher Education of the Republic of Macedonia and Articles 50 to 57, as well as in line with the already established mechanisms for evaluation within the Ss. Cyril and Methodius University in Skopje.

Quality assurance and quality control will be implemented in accordance with the activities and mechanisms that are implemented for all study programmes and apply to all participants in the teaching process at the Faculty of Mechanical Engineering in Skopje. The stated activities and mechanisms of self-evaluation refer to:

- Development of contents for the courses,
- Realization of the teaching process,
- Evaluation of students,
- Preparation of the final paper,
- Evaluation of the quality of teaching process by students using surveys at the end of each semester for each course,
- Evaluation of the quality of the study programme by the students on the occasion of diploma awarding and other procedures related to the resources and teaching process logistics.

Evaluation of the quality of the courses and the study programmes performed by the students shall be made permanently and shall be taken into consideration in evaluation and development of all the study programmes.

Monitoring the students' success and the realization of the programme by the Educational and Scientific Council of the Faculty of Mechanical Engineering shall be applied as activities for development and maintenance of quality and quality control of the study programme. The Council will conduct an internal evaluation of the content of the study programme in the direction of improvement and development in accordance with the contemporary trends in the field.

24.4 Results of the performed self-evaluation according to the Guidelines on the Common Basis for Evaluation and Evaluation Procedures of Universities adopted by the Agency for Evaluation of Higher Education in the Republic of Macedonia and the Inter-University Conference of the Republic of Macedonia (Skopje-Bitola, September 2002).

The results have been published in the Self-evaluation Report of the Faculty of Mechanical Engineering - Skopje for the reporting period 2013-2016, No. 02-1991/2 of November 27, 2017, in accordance with the Guidelines for self-evaluation and assurance and evaluation of the quality of the units of the University, passed by the University Senate (9th Session/April 30, 2013):

https://www.mf.ukim.edu.mk/mk/content/резултати-од-анкетисамоевалуација

24.5 Results of the performed external evaluation of the Ss. Cyril and Methodius University in Skopje

The results of the external evaluation of the Ss. Cyril and Methodius University in Skopje can be found at the following link:

http://ukim.edu.mk/dokumenti_m/297_nadvoresna%202018%20-%20prevod%20(002).docx

ANNEX 1

Decision for adopting the study program by the Academic Council of Scientific unit (Faculty of Mechanical engineering – Skopje) Машински факултет Број 02-228/13 31.01.2019 год. Скопје

Врз основа на член 110 став 1 точка 6 и член 145 став 1 од Законот за високото образование ("Службен весник на РМ" број 82/2018), како и член 2 и 3 од Правилникот за донесување студиски програми (Универзитетски гласник број 140/2009), Наставно-научниот совет на Машинскиот факултет во Скопје, на 30-та редовна седница, одржана на 31 јануари 2019 година, ја донесе следнава

ОДЛУКА

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

1. Се основа студиска програма на англиски јазик Modeling and simulation of plastic deformation technologies and processes (MSPDTP) – Моделирање и симулација на процеси и технологии за пластична деформација (МСПТПД) на втор циклус студии на Машинскиот факултет во Скопје во состав на Универзитетот "Св. Кирил и Методиј" во Скопје, за акредитација.

2. Студиската програма е од видот втор циклус на академски студии (постдипломски студии) во траење од една година (2 семестри), се организира како редовни студии за стекнување 60 ЕКТС кредити по моделот 4+1 и научен назив магистер или Master of Science (MSc) на англиски јазик.

3. Проектот/Елаборатот за основање – акредитација на студиската програма усвоен од Наставно-научниот совет и оваа одлука се упатуваат на Универзитетот "Св. Кирил и Методиј" во Скопје на натамошна постапка за усвојување.

4. Студиите по новата студиска програма на англиски јазик ќе отпочнат од учебната 2019/2020 година.

5. Составен дел на оваа одлука е Проектот/Елаборатот за основање - акредитација на студиската програма.

Одлуката да се достави до: Универзитетот, наставно-научен совет, продекан за МСНР, ОАЕВО, за елаборатот и архивата на Факултетот.



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ANNEX 2

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



Одлука од УС Ознака: ОБ 5.5/13 Страна: 1 од 1

Бр. 02-314 28.2.2019 Скопје

Врз основа на член 94, став 1, алинеја 3 од Законот за високото образование, (Службен весник на Република Македонија бр.82/2018), по предлог на Наставно-научниот совет на Машинскиот факултет, Универзитетскиот сенат на Универзитетот "Св. Кирил и Методиј" во Скопје, на 29. седница одржана на 28 февруари 2019 година, донесе

ОДЛУКА

за усвојување на предлог-проектите за акредитација на студиските програми од втор циклус студии на Машинскиот факултет во Скопје

Член 1

Универзитетскиот сенат ги усвојува предлог-проектите за акредитација на студиските програми од втор циклус студии на Машинскиот факултет во Скопје, и тоа:

- едногодишната студиска програма Напредни производни системи и технологии
- едногодишната студиска програма Механика и машински системи
- едногодишната студиска програма Индустриски дизајн
- едногодишната студиска програма Modeling and Stimulation of Plastic Deformation Technologies and Processes
- едногодишната студиска програма Lean Management
- едногодишната студиска програма Virtual Manufacturing Engineering

Член 2

Универзитетскиот сенат ги упатува проектите од член 1 на оваа Одлука до Одборот за акредитација и евалуација на високото образование на натамошна постапка за акредитација. Проектите, во печатена и во електронска форма до Одборот за акредитација и евалуација на високото образование се доставуваат од страна на единицата на Универзитетот - предлагач и организатор на студиската програма.

Член 3

Оваа Одлука стапува во сила со нејзиното донесување и ќе се објави во Универзишешски гласник.

> СВ. КИС РЕКТОР К. Проф. д-р Никола Јанкуловски * СКОПЛЕ *

Доставено до:

- Машинскиот факултет во Скопје

- Одборот за акредитација и евалуација на високото образование

ANNEX 3

Opinion of the Board on Public Cooperation and Trust

Машински факултет Број 02-230/17 11.02.2019 год. Скопје

Врз основа на 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 12-та седница одржана на 11 февруари 2019 година, го донесе следново

МИСЛЕЊЕ

за студиска програма од втор циклус на студии

1. Се дава позитивно мислење за општествена оправданост за основање на студиската програма на англиски јазик Modeling and simulation of plastic deformation technologies and processes (MSPDTP) – Моделирање и симулација на процеси и технологии за пластична деформација (МСПТПД) од втор циклус на академски студии (постдипломски студии) на Машинскиот факултет во Скопје во состав на Универзитетот "Св. Кирил и Методиј" во Скопје.

2. Основањето на студиската програма, по содржина и обем, како и по општите и специфичните дескриптори на квалификацијата, е во согласност со законските одредби 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 и архивата на Факултетот.

> Претседател на Одборот за соработка и доверба со јавноста Натаща Јаневска

ANNEX 4

Teachers statement of consent for participation in teaching specific subjects of the study program

ИЗЈАВА

Од Атанас Кочов, во звање редовен професор, вработен на Машински факултет -Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСЕН да учествувам во изведување на наставата на студиската програма MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES (MSPDTP) на втор циклус студии при Машински факултет – Скопје на предметот:

- 1. 3D DIGITALIZATION PROCESSES IN MANUFACTURING
- 2. TECHNOLOGY OF RAPID PROTOYPING ADITIVE MANUFACTURING
- 3. MODELING AND SIMULATION OF INJECTION MOLDING PROCESSES
- 4. VIRTUAL DESIGN OF METALFORMING TOOLS

Своерачен потп Проф. д-р Атанас Кочов

ИЗЈАВА

Од <u>Љубомир Дракулевски</u>, во звање <u>професор</u>, вработен/а на Економски факултет при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>MODELING AND SIMULATION OF PLASTIC</u> <u>DEFORMATION TECHNOLOGIES AND PROCESSES</u> на втор циклус студии при Машински факултет – Скопје на предметот:

Feasibility study design
3.

Своерачен потпис

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Проф. д-р Љубомир Дракулевски

ИЗЈАВА

Од <u>Анита Грозданов</u> во звање редовен професор, вработена на Технолошкометалуршки факултет при Универзитетот Св.Кирил и Методиј во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА да учествувам во изведувањето на наставата на студиската програма MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES на втор циклус студии при Машинскиот факултет во Скопје на предметите:

- 1. Polymer Processing
- 2. Nanotechnology Processing
- 3. _____

Своерачен потпис

A. GROZD'ANOV

Проф. Д-р Анита Грозданов

ИЗЈАВА

Од <u>д-р Валентина Гечевска</u>, во звање <u>редовен професор</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>Modeling</u> and <u>simulation</u> of <u>plastic</u> deformation <u>technologies</u> and <u>processes</u> на втор циклус студии при Машински факултет – Скопје на предметот:

1. Intelligent processes and smart technologies

Своерачен потпис

BJenber

Проф. д-р Валентина Гечевска

ИЗЈАВА

Од <u>Емилија Целакоска</u> во звање <u>вонреден професор</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>Modeling and Simulation of Plastic Deformation</u> <u>Technologies and Processes</u> на втор циклус студии при Машински факултет – Скопје на предметот:

1. Geometric Transformations and Deformations in 3D

Своерачен потпис

E. Generocce

Вон. Проф. д-р Емилија Целакоска

ИЗЈАВА

Од д-р Глигорче Вртаноски, во звање редовен професор, вработен на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСЕН да учествувам во изведување на наставата на студиската програма "Modeling and Simulation of Plastic Deformation Technologies and Processes" на втор циклус студии при Машински факултет – Скопје на предметот:

- 1. Virtual Manufacturing
- 2. Computed Integrated Manufacturing

Своерачен потпис wohody

Проф. д-р Глигорче Вртаноски

ИЗЈАВА

Од <u>Татјана Кандикјан</u>, во звање <u>редовен професор</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>MODELING AND SIMULATION OF PLASTIC</u> <u>DEFORMATION TECHNOLOGIES AND PROCESSES</u> на втор циклус студии при Машински факултет – Скопје на предметот:

<u>Design of Plastic Parts</u>
2.

2.

3.

Своерачен потпис

la bauguejan

Проф. д-р

ИЗЈАВА

Од <u>Јована Јованова</u>, во звање<u>доцент</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА да учествувам во изведување на наставата на студиската програма <u>MODELING AND SIMULATION OF PLASTIC DEFORMATION</u> <u>TECHNOLOGIES AND PROCESSES (MSPDTP)</u> на втор циклус студии при Машински факултет – Скопје на предметот:

1. SENSORS & ACCURATORS

Своерачен потпис

<u>for</u>

Доц. д-р Јована Јованова

ИЗЈАВА

Од <u>доц. д-р Ташко Ризов</u>, во звање<u>доцент</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>MODELING AND SIMULATION OF PLASTIC</u> <u>DEFORMATION TECHNOLOGIES AND PROCESSES (MSPDTP)</u> на втор циклус студии при Машински факултет – Скопје на предметот:

1. AUGMENTED REALITY & 3D VISUALIZATION

2. 3.

Своерачен потпис

Доц. д-р Ташко Ризов

ИЗЈАВА

Од Јасмина Чалоска, во звање редовен професор, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES на втор циклусстудии при Машински факултет – Скопје на предметите:

- 1. ADVANCED FORMING PROCESSES AND TECHNOLOGIES
- 2. MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND TOOLS
- 3. VIRTUAL DESIGN OF INJECTION MOLDING TOOLS
- 4. MODELING AND SIMULATION OF SHEET METAL FORMING PROCESSES

Своерачен потпис

Проф. д-р Јасмина Чалоска

ИЗЈАВА

Од <u>Бојан Јованоски</u>, во звање<u>доцент</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНЕН да учествувам во изведување на наставата на студиската програма <u>Modeling and simulation of plastic deformation</u> technologies and processes (MSPDTP) на втор циклус студии при Машински факултет – Скопје на предметот:

1. Management of technology

Своерачен потпис

доц. д-р Бојан Јованоски

ИЗЈАВА

Од <u>Бојан Прангоски</u> во звање <u>доцент</u>, вработен/а на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСНА/ЕН да учествувам во изведување на наставата на студиската програма <u>Modeling and Simulation of Plastic Deformation</u> <u>Technologies and Processes</u> на втор циклус студии при Машински факултет – Скопје на предметот:

1. MATLAB Programming

Своерачен потпис

Доц. д-р Бојан Прангоски

ИЗЈАВА

Од **Зоран Пандилов**, во звање **редовен професор** д-**р** вработен на Машински факултет - Скопје при Универзитетот "Св. Кирил и Методиј" во Скопје.

ИЗЈАВУВАМ ДЕКА СУМ СОГЛАСЕН да учествувам во изведување на наставата на студиската програма MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES, на втор циклус студии при Машински факултет – Скопје на предметите:

1. NUMERICALLY CONTROLLED MACHINES AND CNC PROGRAMMING

2. CAD/CAM SYSTEMS

Своерачен потпис

31104prob

Проф. д-р Зоран Пандилов

ANNEX 5

Consent from the higher educational institution for teacher participation in the realization of the study program



Универзитет "Св. Кирил и Методиј" во Скопје Економски факултет - Скопје



Бр. 02-16317

Дата. 0 . 0 22019 година

Врз основа на член 110 и 179 од Законот за високото образование (Сл.весник на Р.Македонија бр.82/18), Наставно – научниот совет на седницата одржана на ден 30.11.2018 година, ја донесе следната

ОДЛУКА

Се одобрува барањето бр.08-2553/1 од 26.12.2018 година, поднесено од страна на УКИМ, Машински факултет - Скопје.

Се дава согласност, за ангажирање на:

-проф. д-р Љубомир Дракулевски заради акредитација на студиската програма по Modeling and simulation of plastic deformation technologies and processes (MSPDTP) (на предметната програма Feasibility Study Design) на втор циклус студии;

-проф. д-р Љубомир **Дракулевски** заради реакредитација на студиската програма по Индустриско инженерство и менаџмент (на предметната програма Одбрани поглавја од стратегиски менаџмент) на втор циклус студии;

-проф. д-р Анита Циунова Шулеска заради акредитација на студиската програма по Индустриско инженерство и менаџмент (на предметната програма Менаџмент на маркетинг) на втор циклус студии;

-проф. д-р Анита Циунова Шулеска заради акредитација на студиската програма по Индустриски дизајн и маркетинг (на предметната програма Маркетинг менаџмент) на втор циклус студии;

-проф. д-р Анита Циунова Шулеска заради акредитација на студиската програма по Индустриско инженерство и маркетинг (на предметната програма Маркетинг комуникации) на втор циклус студии;

-проф. д-р Снежана Ристевска Јовановска заради акредитација на студиската програма по Индустриски дизајн и маркетинг (на предметната програма Однесување на потрошувачите и истражување на пазарот) на втор циклус студии;

Согласноста се дава заради акредитација на нови и реакредитација на постојните студиски програми, наведени во оваа одлука, а кои ќе се изведуваат на Машинскиот факултет – Скопје.

Оваа одлука влегува во сила со денот на нејзиното донесување.

Оваа одлука да се достави до: Машински факултет, архива и досие на предметот.

Изработил:Д.К

Проф. д-р Љубомир Дракулевски



РЕПУБЛИКА МАКЕДОНИЈА Универзитет "Св.Кирил и Методиј" во Скопје

ТЕХНОЛОШКО-МЕТАЛУРШКИ ФАКУЛТЕТ

До: Машински факултет Скопје

Репу УНКВСРЗИТ МАШ	блика М ет "св. кнриа ИНСКИ Скоп	акедонија И Методију-скопле ФАКУЛТЕТ
Примено:	3 0 -01- 2019	
Орг. Гдин.	Број:	Прилот: Врадност:
08	194/1	

МАШИНСКИ ФАКУЛТ

Предмет: Одлука за согласност за ангажирање наставник на втор циклус студии

Машински факултет во состав на Универзитетот "Св.Кирил и Методиј, до Технолошко-металуршки факултет достави допис бр. 08-2554/1 од 26.12.2018 година за ангажирање на наставник од нашиот факултет за студиска програма на втор циклус студии.

Технолошко-металуршки факултет на Наставно-научен совет донесе одлука за ангажирање на наставник и истата Ви ја доставува во прилог.

Со почит,

Декан Проф.д-р Јон Магдески

Ул. Руѓер Бошковиќ бр. 16 1000 Скопје Тел: + 389 2 3088 200 Деканат +389 2 3088 201 Факс: +389 2 3065 389 www.tmf.ukim.edu.mk е-пошта: dekanat@tmf.ukim.edu.mk



Универзитет "Св. Кирил и І	Репу Методиј", Ю ки факулте	блика Ма Konfje KHPHA MHCKИ СКОП	акедо	нија П-скопје ПЕТ
Do. 02-96/	Примоно:	30-01-201	9 Гонистания Гарилога	Вредност:
28.01 219 rom	08	194/2		

Врз основа на член 34 од Правилникот за внатрешните односи и работењето на Технолошко-металуршки факултет Скопје во состав на Универзитетот "Св.Кирил и Методиј, во Скопје (Унив.гласник бр.260/2013), барањето бр.08-2554/1 од 26.12.2018 година од Машински факултет, Наставнонаучниот совет на Технолошко-металуршки факултет на својата 34-та редовна седница одржана на 24.1.2019 година ја донесе следнава

одлука

за давање согласност за вршење на високообразовна дејност на друга единица во состав на Универзитетот "Св.Кирил и Методиј"

1.Наставно-научниот совет на Технолошко-металуршки факултет Скопје во состав на Универзитетот "Св.Кирил и Методиј, во Скопје го прифати барањето од Машински факултет во состав на Универзитетот "Св.Кирил и Методиј, во Скопје, за ангажирање на наставник на втор циклус студии на студиската програма Modeling and simulation of plastic deformation technologies and processes по предметите: Polymer processing и Nanotechnology processing.

2. На Машински факултет во состав на Универзитетот "Св.Кирил и Методиј, во Скопје, на втор циклус студии за предметите Polymer processing и Nanotechnology processing се ангажира д-р Анита Грозданов, редовен професор.

3. За ангажирање на наставникот двата факултета ќе склучат договор.

4. Одлуката стапува во сила со денот на донесување.

Доставено до: -Архива -продекан за настава -проф.д-р А.Грозданов -Секретар -сметководство -Машински факултет

Проф.д-р Јон Магдески

Декан

Изработил: Д.Анческа До-фи
ANNEX 6

Diploma supplement



Faculty of Mechanical Engineering - Skopje

1. Information identifying the holder of the qualification		
1.1. Name		
1.2. Surname		
1.3. Date, place, and country of birth		
1.4. Unique Master Citizen Number		
2. Information identifying the qualification		
2.1. Date of issuance		
2.2. Name of qualification	Master of science in mechanical engineering - Modeling and simulation of plastic deformation technologies and processes	
2.3. Name of study programme, main area, field, and branch of study	Modeling and simulation of plastic deformation technologies and processes study programme, Scientifc area - Technical and technological sciences, Field - 214 Mechanical engineering Branch – all the domains listed in the relevant scientific field and other.	
2.4. Name and status of awarding institution	Ss. Cyril and Methodius University in Skopje – Faculty of Mechanical Engineering	
2.5. Name and status of higher education institution administering the studies (if different)		
2.6. Language of instruction	English / Macedonian	
3. Information on the level (cycle) of the qualification		
3.1. Type of qualification (academic/vocational studies)	Academic studies	
3.2. Level (cycle) of qualification	Second cycle of studies (graduate studies)	
3.3. Official length of programme: years and ECTS credits	2 semesters, 1 year, 60 credits	
3.4. Study programme enrollment requirements	Completed undergraduate studies, 240 credits	

4. Information on the contents and results gained		
4.1. Mode of study (full-time, part-time)	Full-time	
4.2. Programme requirements and results	Knowledge, skills, and competencies in the field of Mechanical Engineering with a specialty in the field of Industrial Engineering and Management (Lean Management)	
4.3. Programme details (orientation, module, grades, ECTS credits) ¹	The Results Certificate containg the couses completed and credits won is attached.	
4.4. Evaluation scheme (grading scheme and criteria)	The number of points represents the overall workload of the student (lecture attendance, laboratory work, tests, seminal papers, examinations, individual tasks). For earning up to 50% of the total points, grade 5 is awarded, for earning from 51% to 64% of the total points grade 6 is awarded, for earning from 65% to 74% of the total points grade 7 is awarded, for earning from 75% to 84% of the total points grade 8 is awarded, for earning from 85% to 94% of the total points grade 9 is awarded, and for earning from 95% to 100% grade 10 is awarded. (10=A/A+, 9=A-/B+, 8=B-, 7=C, 6=D, 5=F)	
4.5. Grade point average (GPA)		
5. Data on the function of the qualification		
5.1. Access to further study	Third cycle of studies	
5.2. Professional status (if applicable)		
6. Additional information		
6.1. Additional information on the student		
6.2. Additional information on the higher education institution	Faculty of Mechanical Engineering – Skopje Address: Rugjer Boshkovikj no. 18, P.Box 464, 1000 Skopje Telephone: +389 2 3063 374 e-mail: mf@mf.edu.mk web-site: www.mf.edu.mk	
7. Certification of the supplement		
7.1. Date and place		
7.2. Name and signature	Professor Darko Danev, PhD Professor Nikola Jankulovski, PhD	
7.3. Capacity of the signee	Dean Rector	
7.4. Seal	Seal of the Unit Seal of the University	

¹ The Appendix mentioned in 4.3 is the Results Certificate