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 institution	„Ss. Cyril and Methodius" University in Skopje Faculty 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 institution (public, private-public non-profit, private non-profit, private profit)	University / Faculty
Data for the founder (private higher education institution)	National assembly of Republic of Macedonia
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 cycle – year 2018
Study and research areas for which accreditation has been obtained	Research fields: Machinery, Energy, Industrial Engineering and Management, Quality Control, Materials, Environment, Transport, Transportation, Construction and Water Management, Regulation and management of technological processes Scientific research area: Technical and Technological Sciences
Faculty in the higher education institution	**Faculty at „Ss. Cyril and Methodius" University in Skopje 28 members (23 faculties and 5 institutes).** **Faculty of Mechanical Engineering consists of 6 institutes and 1 department.**
Study programs that are realized in the unit who requires extension of the activity by introducing new study program	**First cycle:** **a) Four years academic study programs (240 ECTS):** Production Engineering Transport, Mechanization and Logistics Thermal Engineering Hydraulic Engineering and Water Management Materials, processes and inovations Industrial Engineering and Management Motor Vehicles Energy and environment Mechatronics Automation and Control Systems Industrial design **Second cycle:** **a) Study program for one year Master studies:** • Production Engineering • Transport and Logistics • Thermal Engineering • Automatics and fluids engineering • Materials and Welding • Industrial Engineering and Management

<table>
<tr><td></td><td>

Motor Vehicles
Sustainable energy and environment
Mechatronics
Product lifecycle management
Management and Quality Control

b) Name of the study program for two year Master studies:

Industrial design and marketing
Management of occupational health and safety systems
Management and Quality Control

Third cycle:

Study program in Machinery
Study program Industrial engineering and management

</td></tr>
<tr><td>Data for international cooperation in the field of teaching, research and student mobility</td><td>The Faculty of Mechanical Engineering has international cooperation in the field of teaching, research and student mobility within the CEEPUS mobility program of teaching and student staff, Erasmus and Erasmus + program (signed several agreements with foreign universities, information available at http: //www.ukim.edu.mk/dokumenti_m/431_Erazmus+%20dogovo ri.doc) and other agreements on international cooperation.</td></tr>
<tr><td>Information about area for teaching and research</td><td>
1. Total area (gross area) (space for teaching and yard) 9918 m^2
2. Total teaching area (net space) 4840 m^2
3. Number of lecture theaters with total number of chairs lecture theaters with total number of chairs 480
4. Number of classrooms with total number of chairs 24 classrooms with total number of chairs 1111
<table>
<tr><th>no.</th><th>Types of didactic space numeration</th><th>Number of premises</th><th>Area in square metres</th><th>Total seating capacity</th></tr>
<tr><td>1.</td><td>Lecture theaters</td><td>2</td><td>426</td><td>480</td></tr>
<tr><td></td><td>AMF</td><td>1</td><td>228</td><td>300</td></tr>
<tr><td></td><td>225</td><td>1</td><td>198</td><td>180</td></tr>
<tr><td>2.</td><td>Classrooms</td><td>25</td><td>1628,8</td><td>1113</td></tr>
<tr><td></td><td>123</td><td>1</td><td>87</td><td>56</td></tr>
<tr><td></td><td>124</td><td>1</td><td>87</td><td>64</td></tr>
<tr><td></td><td>125</td><td>1</td><td>75</td><td>40</td></tr>
<tr><td></td><td>224</td><td>1</td><td>111</td><td>80</td></tr>
<tr><td></td><td>310</td><td>1</td><td>127</td><td>88</td></tr>
<tr><td></td><td>311</td><td>1</td><td>76</td><td>48</td></tr>
<tr><td></td><td>A1-1</td><td>1</td><td>88</td><td>88</td></tr>
<tr><td></td><td>A1-2 left</td><td>1</td><td>38</td><td>38</td></tr>
<tr><td></td><td>A1-2 right</td><td>1</td><td>43</td><td>28</td></tr>
<tr><td></td><td>A1-3</td><td>1</td><td>43</td><td>28</td></tr>
<tr><td></td><td>A1-5</td><td>1</td><td>43</td><td>28</td></tr>
<tr><td></td><td>F1-2</td><td>1</td><td>54,5</td><td>22</td></tr>
<tr><td></td><td>F2-4</td><td>1</td><td>60,4</td><td>32</td></tr>
</table>
</td></tr>
</table>

		F2-5	1	42,3	18
		F2-6	1	53,3	22
		K2-6	1	44,7	28
		K2-7	1	44,7	25
		K2-15	1	44,7	20
		K3-9	1	80	40
		K3-1	1	55,1	36
		K3-18	1	55,1	36

Information about the equipment for teaching and research	1. Number of classrooms with computer and capacity of computer workplaces 10 classrooms with total 274 workplaces

no.	Types of didactic space numeration	Number of premises	Area in square metres	Total seating capacity **274**
1	**Computer rooms**	**10**	**391**	
	Room 309	1	75	25
	Room 312 Web Lab	1	75	25
	Computer center 1	1	79	30
	Computer center 2	1	84	44
	Room K1-2	1	47,4	24
	Room K1-3	1	47,4	24
	Room K2-8	1	48,3	40
	Room K3-18 Idea.lab	1	44,7	12
	Room F1-1	1	35	22
	Room A1-4	1	43	28

	2. Number of laboratories for practical teaching …… **21** 3. Equipment for performing higher education activities Equipment value ..... **13.829.470,00 MKD**
Number of students that a accreditation is obtained for	Number of students **1413**
Number of students (enrolled for the first time)	Number of regular students on postgraduate studies **310**
Number of staff in teaching and research, scientific and teaching positions	Structure of the teaching staff in teaching science, research, teaching and associate titles Full professor 37 Associate professor 10 Assistant professor 13

Number of staff with assistant positions	Structure of associates after teaching science, research, teaching and associate titles Teaching Assistant 10 Research assistant 1
Teacher : students ratio (number of students per teacher) for each unit separately	1413 / 60 = 23.55
	(http://www.mf.edu.mk/sites/default/files/files/IZVESHTAJ%20za%20samoevaluacija%20na%20MFS%20201 3.pdf)
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 the scientific research and new sources of knowledge.
Applying knowledge and understanding	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 one-year 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)	ECTS
1.	**ADVANCED FORMING PROCESSES AND TECHNOLOGIES**	**6**
2.	**3D DIGITALIZATION PROCESSES IN MANUFACTURING**	**6**
3.	**TECHNOLOGY OF RAPID PROTOTYPING – ADITIVE MANUFACTURING**	**6**
4.	**MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND TOOLS**	**6**

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 PROCESSES**	**6**
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**
13.	**NUMERICALLY CONTROLLED MACHINES AND CNC PROGRAMMING**	**6**
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 post–processing 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	Measuring range: 0 - 300 mm, Accuracy: 2.5 μm
• Control block, Mitutoyo, type: 515 - 742, No. 022036	Measuring range: 0 - 600 mm, Accuracy: 3.5 μm
• Control ring Ø 10 mm, Mitutoyo, Tip: 177 - 126, No. 881078	Nominal diameter: 10 mm, Cylindricity: 1 μm,
• Control ring Ø 14 mm, Einst, Kp-01	Nominal diameter: 14 mm, Cylindricity: 1 μm
• Control stick L= 25 mm, Mitutoyo, No. 167 - 101	Nominal length: 25 mm, Tolerance: (1+L/50), L in mm
• Control stick L= 50 mm, Mitutoyo, No.167 - 102	Nominal length: 50 mm, Tolerance: (1+L/50), L in mm
• Control stick L= 75 mm, Mitutoyo, No. 167 - 103	Nominal length: 75 mm, Tolerance: (1+L/50), L in mm
• Control stick L = 100 mm, Mitutoyo, No. 167 - 104	Nominal length: 100 mm, Tolerance: (1+L/50), L in mm
• Control stick L =125 mm, Mitutoyo, No.167 - 105	Nominal length: 125 mm, Tolerance: (1+L/50), L in mm
• Control stick L = 150 mm, Mitutoyo, No. 167 - 106	Nominal length: 150 mm, Tolerance: (1+L/50), L in mm
• Control ring Ø 50 mm, Einst, Kp-02	Nominal diameter: 50 mm, Cylindricity: 1 μm,
• Control glass for flatness testing 12 mm, Mitutoyo, No. 157 – 101	Thickness: 12 mm Flatness: 0.1 μm Parallelism: 0.2 μm
• Set of plane-parallel control glasses for inspection of parallelism (4 pieces) Mitutoyo, No. 157 - 903	Thickness: 12,00; 12,12; 12,25; 12,37, Flatness: 0.1 μm Parallelism: 0.2 μm
• Set of plane-parallel bordering scales (10 pieces), Mitutoyo, Code No: 516 - 107, Serial No. 219652	Measuring range: 2,5-25,0 mm, Class I (in accordance with DIN 863)
• Universal length measuring machine, Carl Zeiss Jena, No. 2492	Measuring range: to 600 mm, Resolution: 1 μm
• Universal length measuring machine, Carl Zeiss Jena, No. 1591	Measuring range: to 600 mm, Resolution: 1 μm
• Universal length measuring machine, SIP, Type: MUL-300, No. 556	Measuring range: to 300 mm, Resolution: 0.5 μm With possibility of coil profile measuring
• Universal measuring microscope, Carl Zeiss Jena, No. 10344	Measuring range: 25 x 25 (50 x 150) mm Resolution: 0.01 mm
• Universal measuring microscope, UIM-21, No. 610978	Measuring range:: 100 x 250 mm Resolution: 0.01 mm
• Granite measuring plate, Hommel - dura, No. 11043	Dimensions: 1000x630x150 mm, Accuracy class: 1

16. Course programmes, including information related to Article 4 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)

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Advanced forming processes and technologies			
2.	Code	2MSPDTP01			
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 degree)	Second			
6.	Academic year / semester	I/winter	7.	ECTS credits	6
8.	Professor	Prof. dr Jasmina Chaloska			
9.	Prerequisites for enrolling the course	None			
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. Forging and rolling, rolling process design, extrusion, sheet metal forming: cutting, blanking, fine blanking, deep drawing and bending.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or team work on project assignments, self running assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				

	17.1.	Exams		70 %
	17.2.	Projects		20 %
	17.3.	Attendance		10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved	
20.	Language		English	
21.	Course evaluation		Student questionnaire	
22.	Textbooks			

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Surender Kumar	Technology of Metal Forming Processes	PHI Learning Pvt. Ltd.	2008
2.	Ping Hu, Ning Ma, Li-zhong Liu, Yi-guo Zhu	Theories, Methods and Numerical Technology of Sheet Metal Cold and Hot Forming: Analysis, Simulation and Engineering	Springer-Verlag London	2013
3.	M. Spittel, T. Spittel (auth.)	Metal Forming Data of Ferrous Alloys - deformation behavior Group VIII Advanced Materials and Technologies	Springer-Verlag Berlin Heidelberg	2009

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year
1.	Lin J, Balint D, Pietrzyk M	Microstructural evolution in metal forming processes: Modelling and Applications	Woodhead Publishing, ISBN 978-0-85709-074-4	2012

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

2.	Code	2MSPDTP02			
3.	Study group(s)	Modeling and Simulation of Plastic Deformation Technologies and Processes			
4.	The organizer of the study program (unit, institute,	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering - Skopje			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	I/winter	7.	ECTS credits	6
8.	Professor	Prof. dr Atanas Kochov			
9.	Prerequisites for enrolling the	None			
10.	Course objectives (competences): The course objective is complete summary for understanding the reconstruction of 3D scenes through the use of 3D scanning and point clouds. The course deals and describes the theoretical background, and compares the performance of the proposed approaches to that of current state-of-the- art techniques. This course is highly useful to those unfamiliar with laser scanner data gathering including different available techniques and equipment and would serve as a good first choice about these technologies and processing applications				
11.	Course content: • 3D technologies, 3D scanning and printing • Reviews techniques for the acquisition of 3D point cloud data and for point quality assessment • Explains the fundamental concepts for extracting features from 2D imagery and 3D point cloud data • Proposes an original approach to key point-based point cloud registration • Smart 3D digitalization technologies • Discusses the enrichment of 3D point clouds by additional information acquired with a thermal camera, and describes a new method for thermal 3D mapping • Presents a novel framework for 3D scene analysis, addressing neighborhood selection, feature extraction, feature selection, and classification • Covers each aspect of a typical end-to-end processing workflow, from raw 3D point cloud data to semantic objects in the scene • Application of 3D scanning in different scientific areas and practical issues				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self-running and/or team work on project assignments, self-running assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				
	22.1	Instruction 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	Supplemental Instruction Materials			
		No. Author	Title	Publisher	Year
		1. Brian R. Kent	3D Scientific Visualization with Blender	Morgan & Claypool Publishers	January 7, 2016

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	TECHNOLOGY OF RAPID PROTOTYPING – ADITIVE MANUFACTURING			
2.	Code	2MSPDTP03			
3.	Study group(s)	Modeling and Simulation of Plastic Deformation Technologies and Processes			
4.	The organizer of the study program (unit, institute,	“Ss. Cyril and Methodius” University in Skopje, Faculty of Mechanical Engineering - Skopje			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	I/winter	7.	ECTS credits	6
8.	Professor	Prof. dr Atanas Kochov			
9.	Prerequisites for enrolling the	None			

10.	Course objectives (competences): Objectives of the course are acquiring knowledge about advanced smart specialized systems for developing rapid prototypes, techniques, their application in the 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 manufacturing, rapid prototyping technologies, Smart Prototyping Technologies, Rapid tooling processes, mold design and methodologies for producing rapid tools.				
11.	Course content: • The mechanisms behind all major 3D printing technologies • The benefits and limitations of each technology • Decision making tools for technology selection • Smart prototyping technologies • Expert systems in RP, RT • Actionable design advice and guidelines • Industry case studies from world-leading brands Additionally, the course will cover: Technologies for creating rapid prototypes; techniques: Stereo lithography - SLA; Laminated Object Manufacturing - LOM; Selective Laser Sintering - SLS; Fused Deposition Modeling - FDM; Solid Ground Curing SGC; 3-D Ink-Jet Printing; application of rapid prototype techniques, further development. The benefits of smart technologies of RP, RT in new digital companies for Industry 4.0. Advances in new approaches for 21-st century companies.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self-running and/or team work on project assignments, self-running assignments				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				

22.1	Instruction materials				
	No.	Author	Title	Publisher	Year

		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	Supplemental Instruction Materials				
		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	**Course program for the second level (second cycle - postgraduate) of**				
1.	Course title	Modeling and Simulation of Plastic Deformation Technologies and Tools			
2.	Code	2MSPDTP04			
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			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	I/winter	7.	ECTS credits	6
8.	Professor	Prof. dr Jasmina Chaloska			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Understand the different models of plastic and elastic-plastic behaviour of engineering materials, strategies of the numerical simulation of plastic deformation technologies. design, calculation and modeling of tools. Design and develop new products, by using smart approaches, technologies and tools, as well as the optimization of other already developed, based on the selection of materials for specific applications. Simulation of plastic deformation technologies and tools by using modern software (SOLIDWORKS, SOLIDWORKS Plastics, QForm). Students will be able to solve the practical problems and challenges of modern production, in the design of technologies and the construction of forming tools.				

11.	Course content: 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 of 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 methods: Interactive lectures, auditory and/or laboratory practice, self running and/or team work on project assignments, self running assignments				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		70 %	
	17.2.	Projects		20 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Marc André Meyers, Krishan Kumar Chawla	Mechanical Behavior of Materials	Cambridge University Press	2008

		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
	22.2	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.	Hafner, J.	Materials simulations using VASP—a quantum perspective to materials science	Computer physics communications	2007

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Polymer Processing			
2.	Code	2MSPDTP05			
3.	Study group(s)	SEE			
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 degree)	Second			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. dr Anita Grozdanov			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): 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 select the most-efficient/highly economy technology with the best quality plastic product for the market. Also, the students will be able to study the criteria sustainability of the polymer processing technologies.				
11.	Course content: Course content is divided in three (3) parts: 1. Primary methods of polymer processing - preparation of polymer materials for processing 2. Technologies used for processing of thermoplastic and thermo-reactive polymer materials (extrusion and co-extrusion, thermoforming, blow-molding, injection molding, reaction injection, calandering, pressing, integrated processing, foaming, non-conventional processing methods) 3. Methods for final forming and confection of polymer materials (welding, printing, coloring, bonding)				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				

13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study	60 hours	

17.	Points/Marks:		
	17.1.	Exams	60 %
	17.2.	Projects	30 %
	17.3.	Attendance	10 %

18.	Grading 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.	Prerequisites for taking the final exam	Seminar work delivered and approved	
20.	Language	English	
21.	Course evaluation	Student questionnaire	
22.	Textbooks		

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	D.H. Morton-Jones, Chapman and Hall 1989,	Polymer Processing	Jones, Chapman and Hall	1989
2.	Anita Grozdanov	Internal Book	FTM	2013
3.				

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Nanotechnology Processing			
2.	Code	2MSPDTP06			
3.	Study group(s)	SEE			
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 degree)	Second			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. dr Anita Grozdanov			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): The aim of the course is to give a basic knowledge of a modern research-grade cleanroom, different methods of semiconductor nanofabrication and processing of nanostructures. The participants of the course will have possibility for analyzing and compared different technologies applied in processing of nanostructures.				
11.	Course content: This course provide advanced and higher-level knowledge for the main technologies used for the processing of nanostrucutres. The post-graduated students will be able to select the most-efficient technology processing of nanomaterials. The main technologies include in the program will be: Lithography, Direct patterning (electron-beam, focused ion beam) , scanning probes, nanoimprint, Microcontact printing.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam	Seminar work delivered and approved			
20.	Language	English			
21.	Course evaluation	Student questionnaire			

22.	Textbooks					
	22.1	Instruction materials				
		No.	Author	Title	Publisher	Year
		1.	Cui Zhang	Nanofabrication : Principles, Capabilities and Limits	Springer USA	2008
		2.	Anita Grozdanov	Internal Book	FTM	2018
		3.				
	22.2	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	MODELING AND SIMULATION OF INJECTION MOLDING PROCESSES			
2.	Code	2MSPDTP07			
3.	Study group(s)	Modeling and Simulation of Plastic Deformation Technologies and Processes			
4.	The organizer of the study program (unit, institute,	"Ss. Cyril and Methodius" University in 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	Prof. dr Atanas Kochov			
9.	Prerequisites for enrolling the	None			
10.	Course objectives (competences): Introduction to the characteristics of polymers, molds and tools for plastic injection processes, the process of injection molding(IM), design of smart technologies for IM, computer aided techniques for injection molding processes, the process of digitalization and automatic generating of tools/molds and expert systems for injection molding of polymers				

11.	Course content: Characteristics of polymers, technologies of producing and treatment of polymers, tools and molds, classification of tools, databases, standard elements, ejector systems, intelligent expert systems for numerical controlled machines, injection ignition tool heating appliances, injection projection machines, automatic generating of tools for plastic masses, calculations and numerical plastic tool tools analysis, optimization of smart technologies and tools for plastic masses, techno-economic analysis, computer-aided design of tools/molds, numerical simulation of 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 hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Irvin I. Rubin	Injection Molding: Theory and Practice	Wiley-Inter science;	2007
2.	Douglas Bryce	Plastic Injection Molding: Manufacturing Process Fundamentals	IPLAS	February 19, 2016
3.	M. Joseph Gordon Jr.	Total Quality Process Control for Injection Molding	Wiley; 2 edition	May 3, 2010
4.	Rafael Hinojosa	Introduction to the Plastic Injection Molding Process	Amazon Digital Services 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. 3	**Course program for the second level (second cycle - postgraduate) of**				
1.	Course title	Virtual Design of Injection Molding Tools			
2.	Code	2MSPDTP08			
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			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. dr Jasmina Chaloska			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Students will get a theoretical, practical and comprehensive look at injection mold design and learn to contribute to the overall success of die design projects. They will receive a review of very detailed mold design concepts set forth in the context of the whole design 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 design, sprue, runner and gate, ejection, basic mold inserting, slides and lifters, cooling, venting, mold design projects.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or team work on project assignments, self running assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams	70 %		
	17.2.	Projects	20 %		
	17.3.	Attendance	10 %		
18.	Grading 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.	Prerequisites for taking the final exam			Seminar work delivered and approved		
20.	Language			English		
21.	Course evaluation			Student questionnaire		
22.	Textbooks					
	22.1	Instruction 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 I. Tanner, Xi-Jun Fan	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	Supplemental Instruction Materials				
		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 l Materials Engineering	2006

Add. 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 degree)	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.				
11.	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 parameters of the shaping process.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self-running and/or team work on project assignments, self-running assignments				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Dorel Banabic	Sheet Metal Forming Processes: Constitutive Modeling and Numerical Simulation	Springer	2016
2.	A.Saxena, B. Sahay	Computer Aided Engineering in plastic deformation 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
	22.2	Supplemental Instruction Materials				
		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 the second level (second cycle - postgraduate) of**				
1.	Course title	Modeling and Simulation of Sheet Metal Forming Processes			
2.	Code	2MSPDTP10			
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 degree)	Second			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. dr Jasmina Chaloska			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): The knowledge gained from this course allows the analysis of sheet metal forming processes by the methods of modeling and simulation as well as the interpretation of the results in order to improve the technology. Aim of the course is mastering the content in the field of modeling and simulation of processes in sheet metal forming technologies.				
11.	Course content: Theoretical bases and numerical modeling and simulation of sheet metal forming processes, FEM analysis and its application in deformation processes, analysis of factors influencing on the correctness of the modeling and simulation of sheet metal forming, determination of the stress- stain components, developing of sheet metal formed products, modeling and optimization during cutting, blanking, fine blanking, deep drawing and bending processes.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours

17.	Points/Marks:		
	17.1.	Exams	70 %
	17.2.	Projects	20 %
	17.3.	Attendance	10 %

18.	Grading 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.	Prerequisites for taking the final exam	Seminar work delivered and approved
20.	Language	English
21.	Course evaluation	Student questionnaire
22.	Textbooks	

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Vukota Boljanovic	Sheet metal forming processes and die design	Industrial Press, Inc	2014
2.	Banabic, D.	Numerical Simulation of the Sheet Metal Forming Processes. In Sheet Metal Forming Processes	Springer, Berlin, Heidelberg	2010
3.	Edward B. Magrab, Satyandra K. Gupta, F. Patrick McCluskey, Peter Sandborn	Integrated Product and Process Design and Development	CRC Press	2009

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year
1.	Prof. Dorel Banabic	Advanced Methods in Material Forming	Springer, Berlin, Heidelberg	2007

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**

1.	Course title	Augmented Reality and 3D Visualization			
2.	Code	2MSPDTP11			
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 degree)	Second			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Assistant Prof. dr Tashko Rizov			
9.	Prerequisites for enrolling the course	None			
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 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam	Seminar work delivered and approved			
20.	Language	English			

21.	Course evaluation		Student questionnaire		
22.	Textbooks				
	22.1	Instruction 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 Materials			
		No.	Author	Title	Publisher	Year
		1.	Cawood, S., Fiala, M.	Augmented Reality: A Practical Guide	Pragmatic Bookshelf	2008

Add. 3	**Course program for the second 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 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 degree)		Second		
6.	Academic year / semester		I/winter	7. ECTS credits	6
8.	Professor		Assistant professor Jovana Jovanova		
9.	Prerequisites for enrolling the course		None		
10.	Course objectives (competences): Introduction to physical principles on which are based modern sensors and introduction to the characteristics of the sensors. Introduction to principles of the actuators work and application in mechatronics systems, their functionality and methods of motion controllability.				
11.	Course content: Characteristics of the sensors: static and dynamic. Physical principles of sensors. Acquisition, adaptation and signal analysis. Sensors for temperature, flow, force and voltage, velocity and acceleration, optic and ultrasound measurements. Actuators in mechatronics systems and their application. Review of electric motors, electro-magnetic actuators, servo-motors, step-motors and linear actuators. Non-conventional actuators and their principles and application. Intelligent actuators.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study		60 hours
17.	Points/Marks:				
	17.1.	Exams			60 %
	17.2.	Projects			30 %
	17.3.	Attendance			10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				
	22.1	Instruction materials			
		No.	Author	Title	Publisher	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.3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Design of Plastic Parts			
2.	Code	2MSPDTP12			
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 degree)	Second			
6.	Academic year/semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof .Dr. Tatjana Kandikjan			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Understanding important design considerations in the process of designing with polymers and plastics: Material/process 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.				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
15.	Lectures/Lab	15.1.	Lectures (15weeksx2)	30 hours	
		15.2.	Lab (student work)	30 hours	
16.	ProjectWork/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 %	
18.	Gradingscale		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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Paul F. Mastro	Plastics Product Design	John Wiley & Sons	2016
2.	Robert A. Malloy	Plastic Part Design for Injection Molding	Hanser	2010
3.	Paul A. Tres	Designing Plastic Parts for Assembly	Hanser	2014

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Virtual Manufacturing			
2.	Code	2VME01			
3.	Study group(s)	Modeling and Simulation of Plastic Deformation Technologies and Processes Virtual Manufacturing Engineering (VME)			
4.	The organizer of the study program (unit, institute, department)	"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering – Skopje Institute of Production Engineering and Management			
5.	Level (first, second, third degree)	Second degree			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. Dr. Sc. Gligorche Vrtanoski			
9.	Prerequisites for enrolling the course	None Completed undergraduate studies			
10.	Course objectives (competences): This course will contribute to getting acquainted with the techniques of visual communication of computer design and advanced elements of virtual production. Advanced 3D geometric modeling in the direction of making simulation virtual models and computer animation. Virtual techniques for evaluating products and production processes in virtual production.				
11.	Course content: Introduction to virtual manufacturing as a tool for improving the design and production engineering. 3D graphics and concepts of virtual reality and virtual production. Definition, application of VM technology in product design, manufacturing processes, operation management, relationships in the key domains of applying VM in virtual production. 3D advanced modeling using special geometric modeling techniques. Graphic visualization of models, level detail management - LOD, principles of visual perception, choice of lighting, color, illumination and shading. Collaborative design in creating models for conceptualizing the idea of computer animation. Graphic Virtual scenario by choosing the appropriate tools and techniques. Composition and installation of computer simulation and animation. Simulation of the behavior of systems, products in the manufacturing process and manufacture parts with CNC machines. Documentation management in a virtual production environment through Internet WEB technology. Simulation of the layout of machines in the factory by analyzing and evaluating the appearance of virtual production.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or team work on project assignments, self running assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+20+80+20+30=180 hours			
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2)	30 hours	
		15.2.	Lab (student work)	20 hours	
16.	Project Work/Assignments	16.1.	Project assignments	80 hours	
		16.2.	Individual assignments	20 hours	
		16.3.	Self-study	30 hours	
17.	Points/Marks:				
	17.1.	Exams	30 %		
	17.2.	Projects	60 %		
	17.3.	Attendance	10 %		

18.	Grading 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.	Prerequisites for taking the final exam			Seminar works delivered and approved	
20.	Language			English, Macedonian	
21.	Course evaluation			Student questionnaire and other methods for continual self evaluation	
22.	Textbooks				
	22.1	Instruction materials			
		No.	Author	Title	Publisher	Year
		1.	Gligorche Vrtanoski	Unauthorized lectures of Virtual Manufacturing	Faculty of Mechanical Engineering	2018
		2.	Prashant Banerjee and Dan Zetu	Virtual Manufacturing	Wilye	2001
		3.	Wasim A. Khan, Abdul Raouf K. Cheng	Virtual Manufacturing	Springer	2011
	22.2	Supplemental 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 of the first, second and third level (cycle) of studies**				
1.	Course title	Numerically controlled machines and CNC programming			
2.	Code	2VME07			
3.	Study group(s)	Advanced manufacturing systems and technologies, Virtual manufacturing engineering, Modeling and simulation of plastic deformation technologies and processes			
4.	The organizer of the study program (unit, institute, department)	University Ss. Cyril and Methodius-Skopje, Faculty of Mechanical Engineering, Institute for Production Engineering and Management			
5.	Level (first,second,third)	Second			
6.	Academic year/semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. Dr. Zoran Pandilov			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Introduction to the basic characteristics of modern numerically controlled machines, their construction, types and applications. Qualification and ability for programming numerically controlled machines.				

11.	Course content: Numerically Controlled machines. Basic components of numerically controlled machines. Structure of numerically controlled machines (base and frame (motionless) and structural (moving) components). Guideways. Main spindle. Main spindle drives. Feed drives. CNC control unit, Precision of numerically controlled machines. Types of numerically controlled machines and their application. Types of programming of numerically controlled machines. Programming of numerically controlled machines using CAD/CAM software. G-functions for NC milling. M-functions for NC milling. Generating NC programs for milling of 2, 2.5 and 3 D parts using CAD/CAM software. G-functions for NC turning. M-functions for NC turning. Generating NC programs for turning of 2 and 2.5 D parts using CAD/CAM software.			
12.	Study methods: Lectures supported by presentations, interactive lectures, auditory and/or laboratory practice, company visits, guest lecturers from industry, self running and/or team work on project assignments, self running assignments			
13.	Total hours		6 ECTS x 30 hours = 180 hours	
14.	Hours allocation per activity:		30+30+30+30+60=180 hours	
15.	Lectures/Exercises	15.1.	Lectures (15 weeks x 2 hours)	30 hours
		15.2.	Exercises (laboratory, auditory), seminars, team work (15 weeks x 2 hours)	30 hours
16.	Other forms of activity	16.1.	Project assignments	30 hours
		16.2.	Individual assignments	30 hours
		16.3.	Self-study	60 hours

17.	Points/Marks:		
	17.1.	Partial exams	50 %
	17.2.	Project and individual assignments (presentation: written and oral)	40 %
	17.3.	Activity and participation	10 %

18.	Grading criteria (points / grade)	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.	Prerequisites for taking the final exam	Realized activities 16.1, 16.2, 16.3	
20.	Language	English, Macedonian	
21.	Method of monitoring the quality of teaching	Mechanisms of internal evaluation and surveys, students questionnaire	

22. Textbooks

	Instruction materials				
	No.	Author	Title	Publisher	Year
22.1.	1.	Zoran Pandilov	Numerically controlled machines and CNC programming –printed lectures		

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

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Computer Integrated Manufacturing			
2.	Code	2VME08			
3.	Study group(s)	Virtual Manufacturing Engineering (VME), 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 Institute of Production Engineering and Management			
5.	Level (first, second, third degree)	Second degree			
6.	Academic year / semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. Dr. Sc. Gligorche Vrtanoski			
9.	Prerequisites 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.	Course content: 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 hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+20+80+20+30=180 hours		
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2)		30 hours
		15.2.	Lab (student work)		20 hours
16.	Project Work/Assignments	16.1.	Project assignments		80 hours
		16.2.	Individual assignments		20 hours
		16.3.	Self-study		30 hours
17.	Points/Marks:				
	17.1.	Exams			30 %
	17.2.	Projects			60 %
	17.3.	Attendance			10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar works delivered and approved		
20.	Language		English, Macedonian		
21.	Course evaluation		Student questionnaire and other methods for continual self evaluation		
22.	Textbooks				

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Gligorche Vrtanoski	Unauthorized lectures of CIM	Faculty of Mechanical Engineering	2018
2.	K. Asai, S. Takashima	Manufacturing, Automation	Springer	2001

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

Add. 3	**Course program for the second 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 (unit, institute, department)	"Ss. Cyril and Methodius" University in 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 methods for intelligent processes design and their application in production technologies and systems. Basic concepts and algorithms for heuristic modeling: decision making, knowledge bases &expert systems, genetic algorithms, evolutionary algorithms, fuzzy logic, neural networks. Design and modeling of intelligent production processes. Characteristics of smart processes and smart technologies application in smart concepts (factory of the future, industry 4.0, smart factory, smart products).				

11.	Course content: Intelligent processes and systems, concept and types. Algorithmic and non-algorithmic 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.			
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self-running and/or team work on project assignments, self-running assignments			
13.	Total hours		6 ECTS x 30 = 180 hours	
14.	Hours allocation per activity:		30+30+30+30+60=180 hours	
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.	Self-study	60 hours
17.	Points/Marks:			
	17.1.	Exams		60 %
	17.2.	Projects		30 %
	17.3.	Attendance		10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved	
20.	Language		English	
21.	Course evaluation		Student questionnaire	

22.	Textbooks					
	22.1	Instruction 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. 3	**Course program for the second level (second cycle - postgraduate) of studies**	
1.	Course title	Business Information Systems
2.	Code	2IIM02

3.	Study group(s)		IIM			
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 degree)		Second			
6.	Academic year / semester		I/winter	7.	ECTS credits	6
8.	Professor		Prof. dr Robert Minovski			
9.	Prerequisites for enrolling the course		None			
10.	Course objectives (competences): The main objective of the course is to prepare the participants to be capable of doing analysis of the influence of information systems on certain aspects of the organizations and to determine approaches to optimize those aspects.					
11.	Course content: Types of information systems. Methodologies for design of information systems; hardware and software; data bases. Strategic use of information. Organizational impacts of information systems. Information Technology (IT) and the design of work/work places. IT and improvement of business processes. Knowledge Management and visualization.					
12.	Study methods: Interactive lectures, team work (if applicable), project assignments					
13.	Total hours		6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:		30+30+30+30+60=180 hours			
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.	Self-study		60 hours	
17.	Points/Marks:					
	17.1.	Exams			50 %	
	17.2.	Projects			50 %	
	17.3.	Attendance				
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved			
20.	Language		English			
21.	Course evaluation		Student questionnaire			
22.	Textbooks					
	22.1	Instruction materials				
		No.	Author	Title	Publisher	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	Supplemental Instruction Materials				
		No.	Author	Title	Publisher	Year
		1.				

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Innovation Management			
2.	Code	2MSPDTP13			
3.	Study group(s)	Virtual Engineering, Modeling and simulation of plastic deformation technologies and processes			
4.	The organizer of the study program (unit, institute, department)	Institute for Production and Industrial Engineering, Faculty of Mechanical Engineering "Ss. Cyril and Methodius" University in Skopje, - Skopje			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	II / summer	7.	ECTS credits	6
8.	Professor	Prof. dr Radmil Polenakovikj			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Students will be capable to recognize the need of innovations for company development, but also for development of regional and national economy; to implement different innovation models in the company hwere student performs his/her day-to-day job or internship				
11.	Course content: About creativity; basic principles of innovativeness; Innovation processes; Development of innovation products and services; Innovation models; Intellectual property rights; Importance of innovation for the national economy; Innovativeness on the national level				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+0+60+30+60=180 hours			
15.	Lectures/Lab	15.1.	Lectures (15 weeks x 2)	30 hours	
		15.2.	Lab (student work)	0 hours	

16.	Project Work/Assignments	16.1.	Project assignments	60 hours
		16.2.	Individual assignments	30 hours
		16.3.	Self-study	60 hours
17.	Points/Marks:			
	17.1.	Exams		50 %
	17.2.	Projects		40 %
	17.3.	Attendance		10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved	
20.	Language		English	
21.	Course evaluation		Student questionnaire	
22.	Textbooks			

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	Polenakovikj R., Markovska M.	Innovation management	NCDIEL print	2013
2.	Different authors	Selected case studies, videos, Journal papers,		
3.				

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year
1.	M. Trott	Innovation Management and New Product Development (6th Edition)	Person	2017
2.	K. Goffin, R. Mitchell	Innovation Management: Effective strategy and implementation	Red Globe Press	2016
3.				

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

2.	Code		2MSPDTP14			
3.	Study group(s)		SEE			
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 degree)		Second			
6.	Academic year / semester		I/winter	7.	ECTS credits	6
8.	Professor		Full Professor Ljubomir Drakulevski, PhD			
9.	Prerequisites for enrolling the course		None			
10.	Course objectives (competences): This aim of the course is to develop participant's ability to understand feasibility analysis. Participants will understand techniques through performing various feasibility analysis of differing size and complexity. A feasibility analysis is needed before starting a new project, developing a new product or service, establishing a new business, or upgrading and modifying existing businesses A feasibility analysis is designed to establish whether a project or initiative is worth the investment in time and money needed to get it off the ground. The course also utilizes practical situations, using various analytical and assessment tools.					
11.	Course content: The feasibility analysis is needed to analyze and evaluate a proposed project to determine if it is technically, commercially and financially feasible. In this sense the course evolves around understanding and explain central concepts, models and methods in feasibility aspects. Furthermore included are the aspects of critically examining how a project has been planned, conducted, completed and evaluated					
12.	Study methods: Class Session Group Discussions Simulations exercises Case studies and Problem Solving Exercises, Individual assignments, Templates and tools					
13.	Total hours		6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:		30+30+30+30+60=180 hours			
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.	Self-study		60 hours	
17.	Points/Marks:					
	17.1.	Exams			60 %	
	17.2.	Projects			30 %	
	17.3.	Attendance			10 %	
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved			
20.	Language		English			
21.	Course evaluation		Student questionnaire			
22.	Textbooks					
	22.1	Instruction 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. 3	**Course program of the first, second and third level (cycle) of studies**				
1.	Course title	CAD/CAM systems			
2.	Code	2MSPDTP15			
3.	Study group(s)	Modeling and simulation of plastic deformation technologies and processes, Advanced manufacturing systems and technologies			
4.	The organizer of the study program (unit, institute, department)	University Ss. Cyril and Methodius-Skopje, Faculty of Mechanical Engineering, Institute for Production Engineering and Management			
5.	Level (first,second,third)	Second			
6.	Academic year/semester	II/summer	7.	ECTS credits	6
8.	Professor	Prof. Dr. Zoran Pandilov Prof. Dr. Gligorche Vrtanoski			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Introduction to the basic elements of CAD / CAM systems and their application				
11.	Course content: Historical development of CAD/CAM systems. Theoretical basics of CAD/CAM systems. Basic elements of CAD/CAM systems. CAD/CAM hardware, CAD/CAM software. Geometric modeling. Types of geometric modeling. Computer graphics. Data exchange and integration, Process planning, and path tool generation. CAD/CAM programming. Connection/integration of CAD/CAM systems with numerically controlled machines. Future directions in the development of CAD/CAM systems.				
12.	Study methods: Lectures supported by presentations, interactive lectures, auditory and/or laboratory practice, company visits, guest lecturers from industry, self running and/or team work on project assignments, self running assignments				

13.	Total hours		6 ECTS x 30 hours = 180 hours	
14.	Hours allocation per activity:		30+30+30+30+60=180 hours	
15.	Lectures/Exercises	15.1.	Lectures (15 weeks x 2 hours)	30 hours
		15.2.	Exercises (laboratory, auditory), seminars, team work (15 weeks x 2 hours)	30 hours
16.	Other forms of activity	16.1.	Project assignments	30 hours
		16.2.	Individual assignments	30 hours
		16.3.	Self-study	60 hours

17.	Points/Marks:		
	17.1.	Partial exams	50 %
	17.2.	Project and individual assignments (presentation: written and oral)	40 %
	17.3.	Activity and participation	10 %

18.	Grading criteria (points / grade)	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.	Prerequisites for taking the final exam	Realized activities 16.1, 16.2, 16.3	
20.	Language	English, Macedonian	
21.	Method of monitoring the quality of teaching	Mechanisms of internal evaluation and surveys, students questionnaire	

22. Textbooks

22.1. Instruction materials

No.	Author	Title	Publisher	Year
1.	Zoran Pandilov	CAD/CAM systems –printed lectures		
2.	Kunwoo Lee	Principles of CAD/CAM/CAE	Prentice Hall	1999
3.	Ibrahim Zeid	CAD/CAM:Theory And Practice, Second Edition	Mc Graw Hill	2006
4.	M. Groover	CAD/CAM: Computer-Aided Design and Manufacturing	Pearson	2006

22.2. Supplemental Instruction Materials

No	Author	Title	Publishe	Year

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

Add. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	Geometric Transformations and Deformations in 3D			
2.	Code	2OMI08			
3.	Study group(s)	MSPDTP			
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 degree)	Second			
6.	Academic year / semester	I/winter and summer	7.	ECTS credits	6
8.	Professor	Assoc. prof. d-r Emilija Celakoska			
9.	Prerequisites for enrolling the course	Completed B.Sc			
10.	Course objectives (competences): Mastering mathematical concepts and tools related to the domain of application of geometry for 3D transformations and deformations.				
11.	Course content: Analytic geometry of curves and surfaces; Characteristics of curves and surfaces; Curvilinear coordinate systems and parametrizations; Linear and nonlinear transformations; Deformations in 3D; Methods of analysis practically applied in 3D geometry; Software tools for representation and simulation of transformations and deformations.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			
14.	Hours allocation per activity:	30+30+30+30+60=180 hours			
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.	Self-study	60 hours	
17.	Points/Marks:				
	17.1.	Exams		60 %	
	17.2.	Projects		30 %	
	17.3.	Attendance		10 %	
18.	Grading 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.	Prerequisites for taking the final exam		Realized activities 15.2 and 16.1		
20.	Language		English		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				
	22.1	Instruction materials			
		No. / Author / Title / Publisher / Year			
		1. Cupona G., Celakoski N., Trpenovski B.	Higher Mathematics III	Prosvetno Delo	1994
		2. Tuneski N., Celakoska E.	Introduction in MATLAB	Authors	2010
	22.2	Supplemental Instruction Materials			
		No. / Author / Title / Publisher / Year			
		1. Michael E. Mortenson	Geometric Transformations for 3D Modeling	Industrial Press, Inc.	2007

Add. 3	**Course program for the second level (second cycle-postgraduate) of studies**				
1.	Course title	MATLAB Programming			
2.	Code	2OMI09			
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, Institute for Manufacturing Engineering and Management			
5.	Level (first, second, third degree)	Second			
6.	Academic year / semester	I/winter and summer	7.	ECTS credits	6
8.	Professor	Assistant professor Bojan Prangoski			
9.	Prerequisites for enrolling the course	completed undergraduate studies			
10.	Course objectives (competences): Introduction to the MATLAB programming environment and the fundamental programming concepts.				
11.	Course content: The basic control statements: branching statements, iteration (for-loops and indefinite loops); functions; arrays.				

12.	Study methods: Interactive lectures, auditory and/or laboratory practice, self running and/or teamwork on project assignments, self running assignments			
13.	Total hours		6ECTSx30=180hours	
14.	Hours allocation per activity:		30+30+30+30+60=180hours	
15.	Lectures/Lab	15.1.	Lectures	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.	Self-study	60 hours
17.	Points/Marks:			
	17.1.	Exams		50 %
	17.2.	Projects		40 %
	17.3.	Attendance		10 %
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved	
20.	Language		English	
21.	Course evaluation		Student questionnaire	

22. Textbooks

22.1. Instruction materials

No.	Author	Title	Publisher	Year
1.	Siauw T., Bayen A.	An Introduction to MATLAB Programming and Numerical Methods for Engineers	Academic Press	2014
2.	Тунески Н., Целакоска Е.	Вовед во МАТЛАБ	Авторот	2010
3.				

22.2. Supplemental Instruction Materials

No.	Author	Title	Publisher	Year
1.				
2.				
3.				

Add. 3	**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 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 degree)		Second		
6.	Academic year / semester		I/winter and summer	7. ECTS credits	6
8.	Professor		Assistant professor Bojan Jovanoski		
9.	Prerequisites for enrolling the course		None		
10.	Course objectives (competences): Acquiring knowledge about the management of technological and innovations in the production and non-production organizations. Knowledge related to the development and nurturing of the essential capabilities and dangers of developing disabilities. Conduct a process of analyzing the situation in organizations and identify problems related to physical systems, managerial systems, skills and knowledge and organizational culture.				
11.	Course content: Development of technologies, management and management of technologies. Elements of organizational management (mission, vision, culture, politics). Strategic aspects of the management of technology development (decision-making areas, potentials, portfolio-method). Key abilities and dangers (essential abilities, essential rigidities). Management of innovative activities. Joint problem solving, implementation and integration of new technical processes and tools. Experimenting and generating prototypes, importing knowledge from the outside.				
12.	Study methods: Interactive lectures, auditory and/or laboratory practice, selfrunning and/or team work on project assignments, selfrunning assignments				
13.	Total hours		6 ECTS x 30 = 180 hours		
14.	Hours allocation per activity:		30+30+30+30+60=180 hours		
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.	Self-study		60 hours
17.	Points/Marks:				
	17.1.	Exams			50 %
	17.2.	Projects			50 %
	17.3.	Attendance			
18.	Grading 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.	Prerequisites for taking the final exam		Seminar work delivered and approved		
20.	Language		English/Macedonian		
21.	Course evaluation		Student questionnaire		
22.	Textbooks				
	22.1	Instruction materials			
		No.	Author	Title	Publisher	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	Supplemental 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. 3	**Course program for the second level (second cycle - postgraduate) of studies**				
1.	Course title	**Design of Quality Management Systems**			
2.	Code	2LM07			
3.	Study group(s)	IIM			
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 degree)	Second			
6.	Academic year / semester	I/summer	7.	ECTS credits	6
8.	Professor	Prof. PhD Robert Minovski			
9.	Prerequisites for enrolling the course	None			
10.	Course objectives (competences): Understanding the need for implementation of the standard ISO 9001, being capable for analysis and/or practical implementation of parts of the standard.				
11.	Course content: Family of standards ISO 9000. Requirements of the standard ISO 9001. Prerequisites for successful implementation of ISO 9001. Implementation process of ISO 9001. What comes after implementation of ISO 9001 – integrating ISO 9001 and Lean. Practical analysis/implementation of ISO 9001.				
12.	Study methods: Interactive lectures, team work (if applicable) project assignments				
13.	Total hours	6 ECTS x 30 = 180 hours			

14.	Hours allocation per activity:		30+30+30+30+60=180 hours	
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.	Self-study	60 hours

17.	Points/Marks:		
	17.1.	Exams	60 %
	17.2.	Projects	30 %
	17.3.	Attendance	10 %

18.	Grading 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.	Prerequisites for taking the final exam	Seminar work delivered and approved	
20.	Language	English	
21.	Course evaluation	Student questionnaire	

22. Textbooks

22.1 Instruction materials

No.	Author	Title	Publisher	Year
1.	/	Contemporary materials (presentations, papers, …) on QMS and Lean	/	/
2.	n.n.	Quality management systems - Requirements (ISO 9001:2015)	International Organization for Standardization	2015
3.				

22.2 Supplemental Instruction Materials

No.	Author	Title	Publisher	Year
1.	Micklewright, Mike	Lean ISO 9001, Adding Spark to your ISO 9001 QMS and Sustainability to your Lean Efforts	American Society for Quality, Quality Press	2010

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 teachers that lecture at the first, second and third study program and are mentors on the doctoral thesis**			
1.	Name (First, Last)	Atanas Kochov		
2.	Date of birth	March 8, 1966		
3.	Scientific degree / Title	Doctor of Philosophy; Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D. in Mechanical	2001	Faculty of Mechanical engineering - Skopje
		M. Sc. in Mech	1994	Faculty of Mechanical engineering - Skopje
		B. Sc. in Mech	1990	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular	Area	Field	Specialty

	specialty of master of science degree	Technical & Technology sciences	Mechanical engineeri	Production engineering, technologies and systems FEA in metal forming
7.	Area, field and area of doctoral degree	Area	Field	Specialty
		Technical & Technological sciences	Mechanical engineering, Materials	Production engineering technologies and systems, organization of technological processes; Composite materials
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution		Title and area
		UKIM, Faculty of Mechanical Engineering		Full time professor Mechanical engineering

9. List of courses that the teacher is lecturing separately for first, second and third cycle

9.1. List of courses that the teacher is lecturing in the first cycle

No.	Course	Study program/institution
1.	Management of technology	Industrial engineering and
2.	Computer aided engineering	Production engineering
3.	Production processes	Mechanical engineering
4.	Technology of rapid prototyping	Mechanical engineering
5.	3D engineering	Production engineering
6.	Technology of composites	Production engineering
7.	Technology of metal forming	Production engineering
8.	Modeling of injection molding tools	Production engineering
9.	Computer aided design of metal	Production engineering

9.2. List of courses that the teacher is lecturing in the second cycle

No.	Course	Study program/institution
1.	Management of technology	Industrial engineering and
2.	Sustainable development	Product life cycle management
3.	Cleaner production	Metrology
4.	Modeling and simulation of plastic injection molding	Production engineering
5.	Concurrent engineering	Industrial engineering and
6.	Finite Element Analysis in engineering practices	Production engineering
7.	Sustainable production and consumption	Industrial engineering and management
8.	Eco-innovation	Modeling and simulation of

9.3. List of courses that the teacher is lecturing in the third cycle

No.	Course	Study program/institution
1.	Sustainable development	Industrial engineering and
2.	Management of Technology innovation	Industrial engineering and management
3.	Theory of plasticity and experimental analysis of metal forming processes	Production engineering
4.	Advanced computer aided technics in production systems	Production engineering

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

			A.Kochov:		
	10.2.	Participation in scientific national and international projects			
		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
		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
	10.3.	Printed books in past 5 years			
		No	Authors	Title	Publisher/Year
		1.	Атанас Кочов Atanas Kochov	Технологија на брзи прототипови, модели и алати Rapid prototyping, models and tools	УКИМ, 2015 UKIM, 2015
		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

		6.	**Atanas Kochov,** Daniela Mladenovska	Energy Scenarios for SE Europe: A close look into the Western Balkans.	Proceedings of the Enlargement and Integration Actiion Workshop, JRC, Vienna, 2016 (pp.38-39). Editor JRC EU
	10.4.	Printed papers			
		No	Authors	Title	Publisher/year
		1.	A. Kochov etc.	National Cleaner Production Center Macedonia, Assesment for ceaner production technologies in Macedonian SME's	2007/2012
		2.	A. Kochov	Creating markets for research results	Milocher Development Forum, Przno, Montenegro, 2014
		3.	A. Kochov	Low Carbon technologies in Macedonian SME's from agro bussiness sector	2011- 2013
		4.	A. Kochov	Technology transfer princliples, case of Macedonia, WIPO Inter regional TTO meeting, Working together on Academic IP Commercialization in the 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
		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	
12.	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			
		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
		2.	F.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/B42/S19.082, Book 4 Vol 2, 639-646 pg, July 2016
		3.	F.Osmani, **A.Kochov**	The Sustainable supply of thermal energy, planning and	17th International Multidisciplinary scientific

				decision making by using analytic hierarchy process	Geo Conference SGEM 2017, proceedings, Vol 17th; Ecology, economics, education and legislation, issue 53, 2017
		4.	**Kocov A,** Tuteski O., Spiroski Z	Expert system for mold quotation,	International Journal for Technology of plasticity, Vol 40, Number 1, 2015
		5.	Ognen Tuteski, **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 Tuteski Zoran Spiroski	Analysis of the geometrical parameters and factors which define the complexity and the form of the mold	Journal for Technology of Plasticity, Vol. 39-2014/2
		7.	S.Cvetkov, **A. Kochov**	Experimental analysis for defining the curves of limit diagram for thick sheet metal, part 2,	Journal for Technology of Plasticity, Vol. 39-2014/2
		8.	Slavco Cvetkov, **Atanas Kochov,** Zoran Spiroski	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.Cvetkov **A.Kochov**	Production of complex parts by deep drawing - deformation analysis	Journal for Technology of Plasticity, Vol. 37-2012/1
		10.	N.Kormushska, A.Kochov etc.	Complementary and Overlapping among Energy Performance Indicators as Part of the Sustainable Development and RECP Indicators in Cement Industry	International Journal of Contemporary ENERGY, Vol. 1, No. 1 , pp 20 – 26, ISSN 2363-6440, 2015.
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No	Authors	Title	Publisher/Year
		1.			
		2.			
	12.3.	Proof of at least three international meetings' participation in the past four years			

No.	Authors	Title	International conference	Year
1.	**Kochov A.,** Mladenovska D.,	Identification of technical indicators for creating natural gas supply policies – Balkan case	Invited lecture for the European Commission JRC & the Energy Community Secretariat Joint Workshop on Energy Scenarios	15 Dec, 2015

			for South Eastern Europe, Vienna	
2.	D. Mladenovska, A. Kochov:	Identification of technical indicators for creating natural gas supply policies – Macedonian case	Industrial Energy and Environmental Protection in Southeast Europe, IEEP, Zlatibor, Serbia,	June, 2015
3.	F.Osmani, **A.Kochov:**	Case study – the importance and the impact of the cogeneration project in reducing atmospheric emissions in the city of Prishtina,	XII-371, ISSN 1822-7554, the 13th International conference of young scientists on energy issues, Kaunas, Lithuania,	May 26-27, 2016
4.	A.M.Lazarevska, N.Bakreska-Kormushoska, **A.Kochov:**	Complementarity and overlapping among energy performance indicators as part of the sustainable development and RECP indicators in cement industry,	5th International conference REMOO 2015, Budva, Montenegro,	Sep 2015
5.	A.M.Lazarevska, D.Mladenovska, **A.Kochov:**	Multi Criteria Assessment of natural gas supply options – the Macedonian case,	5th International conference REMOO 2015, Budva, Montenegro, September 2015	Sep 2015
6.	**A. Kochov:**	Challenges for food processing industry: New innovations & Ecosystems",	International Conference on Technology innovation in food processing industry, IQS & DNV.GL-Croatia, Skopje, Macedonia,	Dec 6, 2016
7.	**S.Kjosevski, A.Kochov etc.**	Determination of indicators for sustainable introduction of electric vehicles based on transportation system structure	JUMV the 26 th International Automotive Conference SCIENCE AND MOTOR VEHICLES in Belgrade	19-20 April 2017
8.	S. Kjosevski, A. Kochov etc.	Risks and safety issues related to use of electric and hybrid vehicles	MTM_Borovets_ Bulgaria_2017	May 2017

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

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)	Radmil Polenakovikj		
2.	Date of birth	March 14, 1967		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in Mechanical Engineering	2001	Faculty of Mechanical engineering - Skopje
		M. Sc. in Mechanical Engineerin	1994	Faculty of Mechanical engineering - Skopje
		B. Sc. in Mechanical Engineerin	1992	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mechanical engineering	Human Resources Management
7.	Area, field and area of	Area	Field	Specialty
	doctoral degree	Technical sciences	Mechanical engineering	Management
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution	Title and area	
		UKIM, Faculty of Mechanical Engineering	Full time professor Industrial Engineering and Management	
9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1. List of courses that the teacher is lecturing in the first cycle			

		No.	Course	Study program/institution
		1.	Entrepreneurship and small	All majors / Mechanical Faculty, UKIM
		2.	Human Resources management	IEM, MF, UKIM
		3.	Logistics and Supply Chain Management	IEM, MF, UKIM
		4.	Organizational Behavior	IEM, MF, UKIM
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/institution
		1.	Methods and techniques in maintenance	IEM, MF, UKIM
		2.	Project Cycle Management	IEM, MF, UKIM
		3.	Human Resources Development	IEM, MF, UKIM
		4.	Logistics and Supply Chain Management	IEM, MF, UKIM
		5.	Ergonomics	ISPPI, UKIM
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/institution
		1.	Human Resources Development	IEM, UKIM
		2.	Entrepreneurship and innovation Management	IEM, UKIM

10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Polenakovikj R., Sutevski D.	Entrepreneurial Learning Strategy of Republic of Macedonia 2014 – 2020	ETF & MON, 2014
		2.	R. Polenakovik	Building an Innovation Society – Case of the Republic of Macedonia	UNCTAD Multi-year Expert Meeting on Investment, Innovation and Entrepreneurship for Productive Capacity-building and Sustainable Development, 19 – 21 March 2014, Palais des Nations, Geneva
		3.	T. Fiti, R. Polenakovikj (et al)	Proceedings from the Conference "How to increase employability rate among students and recent graduates?"	MANU and NCCDIEL print, Skopje 2014
		4.	Polenakovikj R, et al.	Development of National Cluster	NCDIEL print, Skopje 2017
				Strategy for Republic of Macedonia 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.	Participation in scientific national and international projects (up to 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.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Polenakovikj R., Markovska M	Innovation management	NCDIEL print, 2013
		2.	Polenakovikj R., Sutevski D.	Business and Entrepreneurship (IV grade	NCDIEL print 2017
		3.	Polenakovikj R., Sutevski D.	Innovation (9th grade for primary schools)	MON, 2018
		4.	Polenakovikj R., Penaluna A., et al	How to teach entrepreneurship	NCDIEL print 2015
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	B. Jovanovski, I. Nikoloski, R. Polenakovik, T. Velkovski, E. Ivanovic	Reducing kills mismatch as a key for increasing the regional competitiveness of women entrepreneurship in Southeast Europe	Proceedings of 7th International Conference for Entrepreneurship, Innovation and Regional Development, ICERID 2014, 5-6 June 2014, Nicosia, Cyprus

		2.	R. Polenakovik, A. Penaluna, K. Penaluna	Closing the gap between labour market needs and students/graduates competences and skills	T. Fiti, R. Polenakovik (editors): "How to increase employment of students and graduates? Conference Proceedings", MANU and NCDIEL print, Skopje, 14 March 2014
		3.	R. Polenakovik	Creativity killers and boosters - How to be more creative?(Don't dream your life, live your dream)	Paper prepared for the needs of the project: Project EU+PIK@ (EU + Entrepreneurship, Initiative, Creativity) (542642-LLP-1-2013-1-SI-AJM-ICS), MFDPS, Celje, Slovenija
		4.	Dimitrovska N., Polenakovikj R.:	Comparative Life Cycle Impact Assessment in Global Warming Potential for Pharmaceutical Packaging purpose	The International Journal of Engineering and Science (IJES), Volume, 6, Issue 4, pp. 24-30, September 2017
		5.	Jovanovski B., Polenakovik R., et al.	Innovative Approach for Facing Roma Exclusion with Social Entrepreneurship Trainings	Annals of Faculty of Engineering Hunedoara – International Journal of engineering, Tome XVI (2018), Fascicule 1 (February)

11.	Supervision (mentorship) of undergraduate, master and doctoral studies students		
	11.1.	Undergraduate	Over 150
	11.2.	Master	Over 50
	11.3.	Doctoral	6 finished and 4 in progress

12.	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			
		No.	Author	Title	Publisher/year

		1.	Naumovska B., J. Chaloska J., Polenakovik R., Gechevska V.	*Creation of Healthy and Safe Worplaces by Use of Software for Ergonomics and Human Actors – JACK*	1st International Conference for Safety Engineering in Function of Improvement of the Working Conditions, 10–12 May, 2013, Ohrid, Macedonia
		2.	Stamboliski V., Donev V., Polenakovik R.	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
		3.	Gecevska V., Donev V., Polenakovik R.	A Review of Environmental Tools Towards Sustainable Development	Annals of Faculty Engineering Hunedoara – International Journal of Engineering, Tome XIV (2016) – Fascicule 1 (February)
		4.	Polenakovik R., Gecevska V., Sutevski D., Jovanovski R. B.	Analysis of the Business Model's Impact to the Success of Macedonian SME's	Methods and Techniques for Industrial Development (Scientific Monograph - editors Franc Čuš, Valentina Gečevska, Fulvia Chiampo), Maribor: Faculty of Mechanical Engineering, 2015
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.	Polenakovik R., Pinto R	The National Innovation System and its Relation to Small Enterprises – the Case of the Republic of Macedonia	World Journal of Science, Technology and Sustainable Development (WJSTSD) Volume 7 Numbers 1/2 2010
		2.	Gecevska V., Donev V., Polenakovik R.	Mass Customization as Aided Value Tool in New Product Development Process	International Journal of Innovative Research in Science, Engineering and Technology, Volume 4, Issue 11, November 2015
	12.3.	Proof of at least three international meetings' participation in the past four years			
		No.	Author	Title	International meeting/conference	year

		1.	G. Stojkov, D. Janevska, R. Polenakovik	Should I stay or should I go: is the leadership style important for the sector where it is performed?	Proceedings of 7th International Conference for Entrepreneurship, Innovation and	2014
		2.	Sutevski D., Polenakovik R.	32 sources of organizational changes	Proceedings of XI International Scientific Conference "Management and Engineering" 13', 23-26 June 2013, Sozopol, Bulgaria	2013
		3.	Polenakovik R., 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., Polenakovik R.	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., Polenakovik R.:	Facilitation of Transfer of Leaders by Addressing the Differences in Leadership Competences in Private and Public Sectors	15th 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 (First, Last)	Jasmina Chaloska		
2.	Date of birth	September 3, 1963		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of	Education	Year	Institution

	the scientific degree	Ph.D. in Technical Sciences	2002	Faculty of Mechanical engineering – Skopje UKIM
		M. Sc. in Mechanical Engineering	1993	Faculty of Mechanical engineering – Skopje UKIM
		B. Sc. in Mechanical Engineering	1987	Faculty of Mechanical engineering – Skopje UKIM
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mechanical engineering	Production engineering, technologies and systems
7.	Area, field and area of	Area	Field	Specialty
	Doctoral degree	Technical sciences	Mechanical engineering	Production engineering, technologies and systems
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution	Title and area	
		UKIM, Faculty of Mechanical Engineering	Full time professor Mechanical engineering	

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No	Course	Study program/institution
		1.	Ergonomics	Industrial engineering and management
		2.	Business informatics	Production informatics
		3.	Unconventional manufacturing processes	Production engineering
		4.	Modeling of plastic deformation tools	Production engineering
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No	Course	Study program/institution
		1.	Modern technologies of plasticity and tools	Production engineering
		2.	Safety and health systems	Product life cycle management
		3.	Professional risk management	Management of safety and health systems
		4.	Modeling and simulation of plastic deformation technologies	Production engineering
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No	Course	Study program/institution

		1.	New materials and modern manufacturing processes	Mechanical engineering	
		2.	Safety and risks at work	Industrial engineering and management	
10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		N	Author	Title	Publisher/year
		1.	T. Pepeljak, J. Chaloska	*Process Parameteres Influencing Deformation Work of Deep Drawing of a Squared Box*	International Conference on Innovative Technologies IN-TECH 2014, Leiria, Portugal, 10-13.09.2014
		2.	I. Ajdari, J. Chaloska	*Impact of sustainable global prevention strategy for high-risk industrial sectors-Vision Zero*	XX World Congress on Safety and Health at Work, 24-27 August, Frankfurt, Germany, 2014
		3.	J. Chaloska, Lj. Dudeski, T. Velkovski	*The occupational safety expert as a basis for implementation and sustainability of OHS system*	International Conference for Regional Collaboration, Bled, Slovenia, 10-11.11.2016
		4.	B. Matevska, J. Chaloska	*Model for safety increasing and risk assessment while working with hazardous chemicals*	International Conference on Innovative Technologies, IN-TECH 2017, Ljubljana, Slovenia 13-15.09.2017
		5.	I. Catik, J.Chaloska, D. Godec, M.Kovacik. A. Pilipovik, K. Skala	*Fluid-deposition of rocks is natural model for additive production*	Interdisciplinary Description of Complex Systems 15(3), 180-189, 2017 (Web of Science) SCI (Science Citation Index) journals IF=0,16]
	10.2.	Participation in scientific national and international projects (up to 5)			
		N	Author	Title	Publisher/year
		1.	J Caloska (project coordinator) Plazma, SolarTubes-Macedonia, Gorenje-	Systems for assessment of surface integrity	EUREKA project, E!4133, 2007-2010

		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.	Printed books in the last five years (up to 5)			
		N	Author	Title	Publisher/year
		1.	R. Polenakovikj, J. Chaloska, B. Naumovska	Ergonomics	National Center for Development of Innovation and Entrepreneurship, 2012
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		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	*Exploring the impact of economic instruments in the field of OSH*	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 workplace 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	*Records as a basis for sustainability of the systems for OSH*	Second Macedonian Congress on Occupational Health with international participation, Skopje, 12-14.10.2016

11.	Supervision (mentorship) of undergraduate, master and doctoral studies students			
	11.1.	Undergraduate	42	
	11.2.	Master	18	
	11.3.	Doctoral	2 in progress	
12.	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		
		No.	Author	Title	Publisher/year
		1.	M. Mitrevska, J. Chaloska, D. Gechevski	*Corporate Social Responsibility Approach for Sustainable Business Model*	Towards Technical Education on Resource Savings for Industrial Development University of Maribor, Maribor, Slovenia, 2015 Politecnico di Torino, Turin, Italy, 2015
		2.	V. Filiposki, J. Chaloska	*Analysis of Injection Molding Cooling Systems and Effects on the Ejection Time of the Part at Thermoplastic Injection Molding*	Journal for Technology of Plasticity, vol.40, Novi Sad, R. Serbia, 2015
		3.	T. Velkovski, J. Chaloska, Lj. Dudeski	*Model of Semi-Quantitative Risk Assessment for Safety at Work in Manufacturing Industry*	Mechanical Engineering Scientific Journal, Vol.33, No.1, Skopje, R. Macedonia, 2015
		4.	J. Chaloska, Lj. Dudeski, T. Velkovski	*Overview of the Macedonian Situation in the Field of OHS and Future Recommendations*	International Journal of Engineering, ISSN:1584-2673, Tome XIII, Hunedoara, Romania, august, 2015
		5.	I. Catik, J.Chaloska, D. Godec, M.Kovacik. A. Pilipovik, K. Skala	*Fluid-deposition of rocks is natural model for additive production*	Interdisciplinary Description of Complex Systems 15(3), 180-189, 2017 (Web of Science) SCI (Science Citation Index) journals IF=0,16]
		6.	V. Mucenski, I.Pesko, T. Velkovski, J. Chaloska, A. Vujkov, D. Bibic	*Impact of Construction Machinery and Tools on Non-Fatal Injuries in the Building Processes*	Tehnicki Vjesnik, ISSN 1330-3651, 2019 Slavonski brod, Croatia IF=0,686
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years		
		No.	Author	Title	Publisher/year
		1.	I. Catik, J.Chaloska,	*Fluid-deposition of*	Interdisciplinary

			D. Godec, M.Kovacik. A. Pilipovik, K. Skala	*rocks is natural model for additive production*	Description of Complex Systems 15(3), 180-189, 2017 (Web of Science) SCI (Science Citation Index) journals IF=0,16]
		2.	V. Mucenski, I.Pesko, T. Velkovski, J. Chaloska, A. Vujkov, D. Bibic	*Impact of Construction Machinery and Tools on Non-Fatal Injuries in the Building Processes*	Tehnicki Vjesnik, ISSN 1330-3651, 2019 Slavonski brod, Croatia IF=0,686

12.3.	Proof of at least three international meetings' participation in the past four years				
	No.	Author	Title	International meeting/conference	year
	1.	J. Chaloska, Lj. Dudeski, T. Velkovski	*The occupational safety expert as a basis for implementation and sustainability of OHS system*	International Conference for Regional Collaboration, Bled, Slovenia	10-11.11.2016
	3.	J. Chaloska, M. Petkovski, T. Velkovski, S. J. Petkovska	*How to make functional osh system?*	Continuous Education- the Basis of Improving of Occupational Safety 15th International Conference, Kladovo, R. Serbia	*18-22.09.2018*
	4.	J. Chaloska, T. Velkovski, M. Petkovski, M. Aleksevska	-	International Conference for Regional Collaboration, BUILDING OSH IN 21st CENTURY, Budva, Montenegro	26-31.10.2017

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)	Gligorche Vrtanoski		
2.	Date of birth	April 15, 1966		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D. in Mechanical Engineering	2003	Faculty of Mechanical engineering - Skopje
		M.Sc. in Mechanical Engineering	1996	Faculty of Mechanical engineering - Skopje
		B.Sc. in	1991	Faculty of Mechanical

		Mechanical Engineering		engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical-technology sciences	Mechanical engineering	Integrated CAD/CAM/CAE/ Systems and FEM of composite material structures
7.	Area, field and area of doctoral degree	Area	Field	Specialty
		Technical-technology sciences	Mechanical engineering	Design of Machine Tool Structures with Composite Materials
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution		Title and area
		UKIM, Faculty of Mechanical Engineering		Full time professor of Mechanical engineering

9. List of courses that the teacher is lecturing separately for first, second and third cycle

9.1. List of courses that the teacher is lecturing in the first cycle

No.	Course	Study program/institution
1.	Design, Testing and Maintenance of Machine Tools	Production Engineering
2.	Quality Management	Industrial Engineering and Management
3.	Computer Aided Product Development	Production Engineering
4.	Computer Design and Animations	Production Informatics
5.	Internet and Web Design	Production Informatics
6.	Business Processes and Metrics	Production Informatics

9.2. List of courses that the teacher is lecturing in the second cycle

No.	Course	Study program/institution
1.	Product Development	Production engineering
2.	Management of Processes	Production engineering
3.	Management of Development of New Products and Processes	Metrology, Management and Quality Control
4.	Methods and Techniques of TQM	Metrology, Management and Quality Control
5.	Development and Management of Products	Product Life-Cycle Management – PLM
6.	Modeling and Simulation of Physical Systems	Production engineering

9.3. List of courses that the teacher is lecturing in the third cycle

No.	Course	Study program/institution
1.	CAx Technologies	Mechanical engineering
2.	Substitution of the Materials	Mechanical engineering
3.	Management of Development of New Products	Mechanical engineering

10. Selected work in the past five years

10.1. Relevant scientific printed paper (up to 5)

No.	Author	Title	Publisher/Year
1.	Simona Domazetovska,	Description and Analysis of Energy Management	Mechanical Scientific 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
		1.	Vrtanoski Gligorce (local team leader):	*EBRD Project No. C32161:* 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.	Меѓународен проект финансиран од Европска Банка за Обнова и Развој / (01/2016 – 07/2019).
		2.	Vrtanoski Gligorce (team leader):	*EBRD Project No. C32418CC:* Business Segmentation and Fleet Management Advisory Services for Railway Transport Company,	Меѓународен проект 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 integrated tariff environment (ITE) systems 2011S 118-193705 Publication 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	Меѓународен проект финансиран од Европска комисија / (08/2013 – 07/2014).
		4.	Vrtanoski Gligorce (team leader):	*EBRD Project No. 43997, – TCS ID: 7040-37045: Macedonian Railways Rolling Stock Renewal* 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	Меѓународен проект финансиран од Европска Банка за Обнова и Развој / (10/2012 – 07/2016).

		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.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/Year
		1.			
		2.			
		3.			
		4.			
		5.			
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/Year
		1.	Georgi Hristov, Gligorche Vrtanoski	Establishing a National Regulator on water services in Macedonia: Watch what you wish	5th Biennial 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	Improving Quality of Railway Passanger Service in Republic of Macedonia	VIII International Scinetific Conference „Transport Problems 2016“, Proceedings, June 27 – 28, 2016, pp 100-106, Katowice, Poland, ISBN 978-83-935232-8-3

11.	Supervision (mentorship) of undergraduate, master and doctoral studies students		
	11.1.	Undergraduate	Over 50
	11.2.	Master	15
	11.3.	Doctoral	3

12. 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

No.	Author	Title	Publisher/Year
1.			
2.			
3.			
4.			
5.			
6.			

12.2. Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years

No.	Author	Title	Publisher/Year
1.			
2.			

12.3. Proof of at least three international meetings' participation in the past four years

No.	Author	Title	International Meeting/ Conference	Year
1.				
2.				
3.				

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)	Zoran Pandilov		
2.	Date of birth	04.01.1965		
3.	Scientific degree/Title	VIII / Dr.		
4.	Title of the scientific degree	Doctor in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		B.Sc, in Mechanical Engineering	1984-1989	Faculty of Mechanical Engineering-Skopje
		M.Sc. in Mechanical Engineering	1989-1993	Faculty of Mechanical Engineering-Skopje
		Dr. in Technical	1993-1997	Faculty of Mechanical Engineering-Skopje

		Sciences			
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty	
		Technical sciences	Mechanical engineering	Flexible automation	
7.	Area, field and particular specialty of Doctoral degree	Area	Field	Specialty	
		Technical sciences	Mechanical engineering	Flexible automation	
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution			Title and area
		University Ss. Cyril and Methodius, Faculty of Mechanical Engineering - Skopje			Full time Professor, Production technologies and systems

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/Institution
		1.	Automation in production	Production Engineering, Industrial Engineering and Management/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		2.	Numerical control and CAD/CAM	Production Engineering/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		3.	Industrial robotics	Production Engineering, Automation and control systems/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		4.	Numerically controlled machines	Production Engineering, Mechatronics / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/Institution
		1.	Flexible Automation	Advanced manufacturing systems and technologies , Virtual manufacturing engineering,/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		2.	Modeling and simulation of physical systems	Advanced manufacturing systems and technologies /Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		3.	Numerically controlled machines and CNC programming	Advanced manufacturing systems and technologies , Virtual manufacturing engineering, Modeling and simulation of plastic deformation technologies and processes/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		4.	CAD/CAM systems	Advanced manufacturing systems and technologies ,Modeling and simulation of plastic deformation technologies and

				processes,/Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		5.	Virtual design of production systems and machines	Virtual manufacturing engineering/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		6.	Systems for automation	Product life cycle management/Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		7.	Automation of the process of measurement and control	Metrology, management and control of quality/ Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		8.	Safety of machines and devices	Management with Occupational Safety and Health Systems / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/Institution
		1.	Numerical and program control of movements and processes	Mechanical Engineering / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		2.	Flexible automated machines, devices and production systems	Mechanical Engineering / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		3.	Selected chapters from robotics	Mechanical Engineering / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
		4,	CAx technologies	Mechanical Engineering / Faculty of Mechanical Engineering, University Ss. Cyril and Methodius-Skopje
10.	Selected results in the past five years			
	10.1.	Relevant printed scientific papers (up to 5)		
		No.	Author	Title	Publisher/year
		1.	**Z.Pandilov**, V. Dukovski	Static and dynamic stiffness of the mechatronic position servo systems	Applied Mechanics and Materials Vol. 332 (2013) pp 186-193, Trans Tech Publications, Switzerland, ISBN-13: 978-3-03785-733-5, (ISSN: 1660-9336) (International journal)
		2.	**Z.Pandilov**, V. Dukovski	Improving the HSC linear motor milling machine contouring accuracy	Key Engineering Materials Vol. 581 (2014) pp 384-390, Trans Tech Publications, Switzerland, ISBN 978-3-03785-840-0, (ISSN: 1013-9826) (International journal)
		3.	**Z.Pandilov**, V. Dukovski	Comparison of the characteristics between serial and parallel robots	ACTA TECHNICA CORVINIENSIS-Bulletin of Engineering, Tome VII (Year 2014), Fascicule 1 (January-March), pp. 143-160, ISSN 2067-3809

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

					Program SK-0067 project: (two years project 2016-2017). (Project leader from Macedonian side) (International project)
	10.3.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Zoran Pandilov	Automation	Faculty of Mechanical Engineering-Skopje, 2015, internal edition
		2.			
		3.			
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Amadeusz Nowak, Bartosz Minorowicz, Frederik Stefański, **Zoran Pandilov**	Characteristics of the Improved Magnetic Shape Memory Alloy Actuator Test Stand	R. Szewczyk et.al. (Eds.) Progress in Automation, Robotics and Measuring Techniques, Advances in Intelligent Systems and 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. Pandilov**	Benefits of implementation of flexible automation and CAD/CAM systems in metal processing companies	Mechanical Engineering – Scientific Journal, Vol. 33, No. 1, pp. 91–102 (2015), CODEN: MINSC5, In print: ISSN 1857–5293, On line: ISSN 1857–9191.
		3.	N. Veselinkovski, **Z. Pandilov**	Benefits of upgrading CNC machine for engraving and cleaning metal parts	Mechanical Engineering – Scientific Journal, Vol. 33, No. 1, pp. 103–108 (2015), CODEN: MINSC5, In print: ISSN 1857–5293, On line: ISSN 1857–9191
		4.	**Z. Pandilov**	Electrochemical machining of materials used in extreme conditions,	Proceedings of the Industrial Workshop "Innovations towards technology for extreme conditions industry", University of Burgos, October 5-7, 2016, Burgos, Spain
		5.	Betim Shabani, **Zoran Pandilov**	Analyzing and application of Reverse Engineering for design and development of mechanical parts	Mechanical Engineering – Scientific Journal, Vol.35 , No.2 , pp. 89-96 (2017), CODEN: MINSC5, In print: ISSN 1857–5293, On line: ISSN 1857–9191
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				

	11.1.	Undergraduate		Over 170
	11.2.	Master		15
	11.3.	Doctoral		
12.	For mentors of doctoral theses, selected papers for the last four/five years			
	12.1.	Proof of printed scientific research papers in international scientific journals or international scientific publications in the given field (up to six) in the last five years		
		No.	Author	Title	Publisher/year
		1.	**Z.Pandilov**, V. Dukovski	Static and dynamic stiffness of the mechatronic position servo systems,	Applied Mechanics and Materials Vol. 332 (2013) pp 186-193, Trans Tech Publications, Switzerland, ISBN-13: 978-3-03785-733-5, (ISSN: 1660-9336) (International journal)
		2.	**Z.Pandilov**, V. Dukovski	Improving the HSC linear motor milling machine contouring accuracy	Key Engineering Materials Vol. 581 (2014) pp 384-390, Trans Tech Publications, Switzerland, ISBN 978-3-03785-840-0, (ISSN: 1013-9826) (International journal)
		3.	**Z.Pandilov**, V. Dukovski	Comparison of the characteristics between serial and parallel robots	ACTA TECHNICA CORVINIENSIS-Bulletin of Engineering, Tome VII (Year 2014), Fascicule 1 (January-March), pp. 143-160, ISSN 2067-3809 (International journal)
		4.	**Z.Pandilov**, V. Dukovski	Analytical Determination of the CNC Machines High-Speed Feed Drives Position Loop Gain	Applied Mechanics and Materials Vol. 555 (2014) pp 505-510, Trans Tech Publications, Switzerland, ISSN: 1660-9336 (International journal)
		5.	**Zoran Pandilov,** Andrzej Milecki, Amadeusz Nowak, Filip Górski, Damian Grajewski	Virtual modeling and simulation of CNC machine feed drive system	ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering , Tome XIII [2015] – Fascicule 1 [February], pp. 19-28, ISSN: 1584-2665 (International journal)
		6.	**Z.Pandilov**, V. Dukovski	HSC linear motor machine dynamic stiffness,	Applied Mechanics and Materials, Vol 772 (2015) pp 218-223 , Trans Tech Publications, Switzerland, ISSN: 1660-9336 (International journal)
	12.2.	Proof of at least two printed scientific research papers in international scientific journals with impact factor in the given field in the last five years			
		No.	Author	Title	Publisher/year
		1.	**Z.Pandilov,** V. Dukovski	Static and dynamic stiffness of the mechatronic position	Applied Mechanics and 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. Dukovski	Improving the HSC linear motor milling machine contouring accuracy	Key Engineering Materials Vol. 581 (2014) pp 384-390, Trans Tech Publications, Switzerland, ISBN 978-3-03785-840-0, (ISSN: 1013-9826) (International journal)	
	12.3.	Proof of at least three participation in international meetings in the last four years				
		No.	Author	Title	International meeting/conference	
		1.	Amadeusz Nowak, Bartosz Minorowicz, Frederik Stefański, **Zoran Pandilov**	Characteristics of the Improved Magnetic Shape Memory Alloy Actuator Test Stand	Proceedings of the Conference "Automation 2015", **March 18 - 20, 2015, Industrial Institute for Automation and Measurements PIAP, Warsawa, paper 72,**	2015
		2.	**Z. Pandilov**	Electrochemical machining of materials used in extreme conditions	Proceedings of the Industrial Workshop "Innovations towards technology for extreme conditions industry", University of Burgos, October 5-7, 2016, Burgos, Spain	2016
		3.	**Zoran Pandilov**	Electrochemical machining (tolerances, advantages and disadvantages)	Proceedings of the Workshop "Electrochemical processing methodologies and corrosion protection for device and systems miniaturization", WG1, National Technical University Athens, October 12–14, 2016, Athens, Greece	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 (First, Last)	Tatjana Kandikjan		
2.	Date of birth	March 10,1957		
3.	Scientific degree/ Title	Ph.D.		
4.	Title of the scientific degree	Ph.D.in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph. D in Mechanical Engineering	1994	Ss. Cyril and Methodius University, Skopje
		M.Sc.in Mechanical Engineerin	1986	Univerza Edvarda Kardelja, Ljubljana, Slovenia
		B.Sc.in Mechanical Engineerin	1980	Ss. Cyril and Methodius University, Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mecha nical	Computer-Aided Design
7.	Area, field and area of	Area	Field	Specialty
	Doctoral degree	Technical Sciences	Mech anical	Design Automation
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution		Title and area
		UKIM, Faculty of Mechanical Engineering		Full time professor Mechanical engineering

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/ institution
		1.	Engineering Design	Mechanical engineering
		2.	New Product Development	Industrial design
		3.	Packaging Design	Industrial design
		4.	Eco-design	Industrial design
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/institution
		1.	Computer-aided product design	Industrial design and marketing
		2.	Product customization and rapid prototyping	Industrial design and marketing
		3.	Product development and innovation management	Industrial design and marketing
		4.	Consumer product design	Industrial design and marketing
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/ institution
		1.	Product design and development	Mechanical engineering
		2.	Product design for the environment	Mechanical engineering
10.	Selected work in the past five years			
	10.1.	Relevant scientific printed 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.	Participation in scientific national and international projects (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Grant holder : Prof. Michael Krohn, Zürcher Hochschule der Künste, Zurich,	"Design with Social Impact",	2015-2017
	10.3.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
	10.4.	Printed professional papers in the last 5 years (up to 5)			

		No.	Author	Title	Publisher/year
		1.	Tatjana Kandikjan, Sofija Sidorenko, Ile Mircheski	"Designing the Evolution 2"	Ministry of Culture, Republic of Macedonia, 2017, pp. 126
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				
	11.1.	Undergraduate		12	
	11.2.	Master		2	
	11.3.	Doctoral		2	
12.	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			
		No.	Author	Title	Publisher/ year
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.	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
		2.	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)
	12.3.	Proof of at least three international meetings' participation in the past four years			
		No.	Author	Title	Internationalmeeting/ conference / 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)	Tashko Rizov		
2.	Date of birth	March 5, 1983		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in Mechanical Engineering	2014	Faculty of Mechanical engineering - Skopje

		M. Sc. in Mechanical Engineerin	2010	Faculty of Mechanical engineering - Skopje
		B. Sc. in Mechanical Engineerin	2006	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mechanical engineering	General mechanical engineering, engineering design
7.	Area, field and area of	Area	Field	Specialty
	doctoral degree	Technical sciences	Mechanical engineering	General mechanical engineering, engineering design
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution	Title and area	
		UKIM, Faculty of Mechanical Engineering	Assistant professor General mechanical engineering, engineering design	

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	Engineering Graphics	All
		2.	Design Techniques	Industrial Design
		3.	3D Modelling and Visualization	Industrial Design
		4.	Design of Web Sites	Industrial Design
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/institution
		1.	3D Visualization – Augmented and Virtual Reality	Industrial engineering and management
		2.		
		3.		
		4.		
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/institution
		1.		
		2.		

10.	Selected work in the past five years			
	10.1.	Relevant scientific printed paper (up to 5)		
		No.	Author	Title	Publisher/year
		1.	Mircheski, I., Rizov, T.	Improved Nondestructive Disassembly Process using Augmented Reality and RFID Product/Part Tracking	TEM Journal. Volume 6, Issue 4, Pages 671-677, ISSN 2217-8309, Nov 2017

		2.	T. Rizov, M. Kjosevski, R. Tashevski:	Driver Assistance Systems in Vehicles Using Augmented Reality – Benefits and Challenges;	International Scientific Journal trans & MOTOAUTO WORLD, Year II, Issue 4/2017; ISSN 1313-5031.
		3.	T. Rizov, M. Kjosevski, R. Tashevski	Advanced Visualization Technologies as a Tool in the Area of Automotive Engineering	Scientific Technical Union of Mechanical Engineering / 2016
		4.	T. Rizov, R. Tashevski	Advanced Technologies for Visualization as a Tool for Identification of Vehicle Details and Elements	XXV International Automotive Conference Science and Motor Vehicles / 2015
		5.	T. Rizov, E. Rizova	Augmented Reality as a Teaching Tool in Higher Education	International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) / 2015, **Global Impact Factor (2014)=0,678; ICV (2013)=6.76.**
	10.2.	Participation in scientific national and international projects (up to 5)			
		No.	Author	Title	Publisher/year
		1.	T. Rizov, A. Kochov	International project for	UNIDO / 2011-2013
		2.	M. Kjosevski, D. Danev, I. Gjurkov, A. Kostic, T.	International Project for Transport EU-Western	FP7 Programme / 2009-2010.
		3.			
	10.3.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	R. Tashevski, T.Rizov	Technical drawings with descriptive geometry and Autocad	Ministry of Education and Science of Republic of Macedonia / 2011
		2.	R. Polenakovic, T. Rizov	Basics of Logistics	University “Ss. Cyril and Methodius” – Skopje, 2014
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
		2.			
		3.			
		4.			
		5.			
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				
	11.1.	Undergraduate		14	
	11.2.	Master		2	

	11.3.	Doctoral	-		
12.	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			
		No.	Author	Title	Publisher/year
		1.			
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.			
	12.3.	Proof of at least three international meetings' participation in the past four years			
		No.	Author	Title	International meeting/conferenc / 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)	Anita Grozdanov		
2.	Date of birth	July 2, 1965		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in Technical Science	2002	Faculty of Technology and Metallurgy-Skopje Metallurgy Mechanical engineering - Skopje
		M. Sc. in Technical Science -	1994	Faculty of Technology and Metallurgy-Skopje
		B. Sc. in Technical Science	1989	Faculty of Technology and Metallurgy-Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Technology	Organic a&Technical fiber
7.	Area, field and area of	Area	Field	Specialty
	doctoral degree	Technical sciences	Technology	NEW Technologies for Composite
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution	Title and area	
		UKIM, Faculty of Mechanical Engineering	Full time professor Polymer and Nano materials	
9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	Structure and Properties of	Polymer materials-Design & Management

	2.	Structure and Properties of	Material Science and nanotechnology	
	3.	Polymer Processing	Material Science and nanotechnology +	
	4.	LCA of Polymers	Polymer materials-Design & Management	
9.2.	List of courses that the teacher is lecturing in the second cycle			
	No.	Course	Study program/institution	
	1.	Advanced chapters -Polymer	New Materials - Polymers	
	2.	Application of Polymers in	New Materials - Polymers	
	3.	Management of Sustainable Deve.	Management of Quality	
	4.	Cleaner Production	Environmental Engineering	
9.3.	List of courses that the teacher is lecturing in the third cycle			
	No.	Course	Study program/institution	
	1.	Polymer Processing	Technology	
	2.			

10.	Selected work in the past five years				
10.1.	Relevant scientific printed paper (up to 5)				
	No.	Author	Title		Publisher/year
	1.	Anita Grozdanov	Synthesis and characterization of nanocomposites based on PANI and carbon nanostructures prepared by lectropolymerization		Materials Chemistry and Physics, 185, 83-90 (2017), IF=2,1
	2.	Anita Grozdanov	Electrocatalysts with reduced noble metals aimed for hydrogen/oxygen evolution supported on Magneli phases. Part I: Physical characterization,		Bulgarian Chemical Communications, 50,82-88(2018) (IF=0,238)
	3.	Anita Grozdanov	Vitrification of hazardous Fe-Ni wastes into glass-ceramic with fine crystalline structure and elevated exploitation characteristic		Journal of Environmental Chemical Engineering, 5, 432-441(2017)(IF=3,42)
	4.	Anita Grozdanov	Study of Graphene obtained by		Sci Fed Nanotech
			Study of Graphene obtained by Electrolysis in Sulfuric Acid Electrolytes		Sci Fed Nanotech Research Letters, (OPEN ACCESS), (2017)Vol. 1 Iss. 2
	5.	Anita Grozdanov	Multinanosensors Based on MWCNTs and Biopolymer Matrix - Production and Characterization		Acta Physica Polonica Series A 132(4):1251-1255(2017) (IF=0,43)
10.2.	Participation in scientific national and international projects (up to 5)				
	No.	Author	Title		Publisher/year
	1.	Anita Grozdanov, IAEA	Applicatio of ionizing Irradiation in Nanotechnology for ENV, energy, (MAK2016008)		2018-2019
	2.	Anita Grozdanov, FP7	COMMON SENSE		2013-2017
	3.	Anita Grozdanov, FP7	NMP-TeAm		2012-2014

	10.3.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Anita Grozdanov	Removal of Heavy Metal Ions from Wastewater using Bio- and Nanosorbents	International Confer. on Microplastic Pollution in the Mediteranean Sea, Springer Water, (2018)
		2.	Anita Grozdanov	Polymer modified cement bricks based on Fly Ash	Material and Environment Protection, 1, 24-30 (2016)
		3.	Anita Grozdanov	Functionalization and Characterization of MWCNT Produced by Different Method	Acta Physica Polonica, 129, 3, 405-408 (2016) (IF=0,53)
		4.	Anita Grozdanov	Risks and Health effects from exposure to engineered nanostructures	J. Chem. Technol. & Metall., 50, 2, 117-134 (2015)
		5.	Anita Grozdanov	Polymer Nanocomposite Films with Functionalized MWCNTs	Applied Mechanics and Materials, 328, 778-783 (2013)
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				
	11.1.	Undergraduate		Over 20	
	11.2.	Master		Over 2	
	11.3.	Doctoral		Over 2	
12.	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			
		No.	Author	Title	Publisher/year
		1.			
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.			
	12.3.	Proof of at least three international meetings' participation in the past four years			
		No.	Author	Title	International meeting/conferenc / 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 birth	09.09.1965

3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D. in Mechanical Engineering	2002	Faculty of Mechanical engineering - Skopje
		M.Sc. in Mechanical Engineering	1995	Faculty of Mechanical engineering - Skopje
		B.Sc. in Mechanical Engineering	1989	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical Sciences	Mechanical engineering	Automation process planning and design
7.	Area, field and particular specialty of doctoral degree	Area	Field	Specialty
		Technical Sciences	Mechanical engineering	Production processes and technologies
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution	Title and area	
		Ss. Cyril and Methodius University in Skopje, Faculty of Mechanical Engineering	Full time professor Production Engineering and Industrial Engineering	

9. List of courses that the teacher is lecturing separately for first, second and third cycle

9.1. List of courses that the teacher is lecturing in the first cycle

No.	Course	Study program/institution
1.	Process planning and design	Production Engineering
2.	Engineering economics	Industrial engineering and management
3.	Management of new product development	Industrial engineering and management
4.	Production technologies	Mechanical Engineering

9.2. List of courses that the teacher is lecturing in the second cycle

No.	Course	Study program/institution
1.	Advanced production processes and technologies	Production Engineering
2.	Intelligent production systems	Production Engineering Industrial Negineering and Management
3.	Automation process planning design	Production Engineering Industrial Negineering and Management
4.	Basic of Product Lifecycle Management	Product Lifecycle Management
5.	Economic of life cycle	Product Lifecycle Management
6.	Environmental sustainability	Product Lifecycle Management
7.	Innovation management	Product Lifecycle Management
8.	Quality costs management	Quality Management
9.	Processes management	Management of safety systems

		10.	Environmental Risk Management	Environmental Engineering	
		11.	Management of technology and Management of new product development	Industrial engineering, Engineering management/Faculty of Technical Sciences in Novi Sad	
	9.3.	List of courses that the teacher is lecturing in the third cycle			
		No.	Course	Study program/institution	
		1.	Engineering economics analysis	Industrial Engineering and Management	
		2.	Intelligent production systems and processes	Mechanical Engineering	
10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Gecevska V., Anisic Z.	Lean Product Lifecycle Management Approach	Int. Journal of Industrial Engineering and Management, Vol.4 N.4, 2013, ISSN: 2217-2661, pp. 207-214. (Scimago SJR=0.2)
		2.	Petkovic D., Gecevska V., Madic M., Radovanovic M.	Application of the performance selection index method for solving machining MCDM problems	Scientific Journal Facta Universitatis, series Mechanical Engineering, Vol.12, No.12, 2014, ISSN: 0354-2025.
		3.	Gecevska V., Polenakovik R.	Mass Customization as Aided Value Tool in New Product Development Process	Int. Journal of Innovative Research in Science, Engineering and Technology, Vol.4, Issue 11, 2015, pp.346-355. ISSN 2319-8753. (Global IF=0,544 for 2015)
		4.	Gecevska V., Kuzinovski M., Cus F., Tomov M.	Modelling of Cutting Tool Wear and Cutting Tool Life for Face Milling Operations	Journal of the Balkan Tribological Association, Vol.22, No.3A-I, 2016. ISSN: 1310-4772. (WoS SCI journals, IF=0,32 for 2015)
		5.	Polenakovik R., Stankovska I., Jovanovski B., Gecevska V.	Innovativeness in Macedonian Companies: Evidence from the Community Innovation Survey	Journal of Technical Gazzette, Vol.25, No.3, 2018, pp.910-915. (WoS SCI journals, IF=0,5 for 2016)
	10.2.	Participation in scientific national and international projects (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Gecevska V. – project coordinator for Macedonia, Cus F. – project coordinator for Slovenia	„Development of the intelligent based tools for production processes management”	International Scientific Project financed by the Ministry of Education and Science - Macedonia and the Ministry of Science and

					Technology-Slovenia,2012-2014
		2.	Gecevska V.-project 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.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/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

					91546369, 252 p.
		5.			
	10.4	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Gecevska V. member of team	„Western Balkan Regional R&D Strategy for Innovation"	Strategy Document: financed by the World Bank and European Commission, 2013, 105p.
		2.	Gecevska V., etc.	„Value Stream Mapping analysis and improvement for the production process of electrical equipment	EuropeAid/127054/C/SER/ Multi in third countries, Skopje, 2013, 75p.
		3.	Gecevska V., etc.	„Factors for Economic Growth of Macedonian SMEs"	World Bank, 2014, 155p.
		4.	Gecevska V.	„Economical Assessment and Cost Benefit Analysis for Production Plant based on Renewable Energy Sources"	Feasibility Study, FP7 CONCERTO - 239515 Project, 2014, 95p.
		5.	Gecevska V. etc.	„„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.	Менторства на додипломски, магистерски и докторски студии				
	11.1.	Дипломски работи	65		
	11.2.	Магистерски работи	20		
	11.3.	Докторски дисертации	4		
12.	За ментори на докторски трудови селектирани резултати во последните четири/пет години				
	12.1.	Доказ за печатени научноистражувачки трудови во меѓународни научни списанија или меѓународни научни публикации во даденото поле (до шест) во последните пет години			
		No.	Author	Title	Publisher/year
		1.	Petkovic D., Gecevska V., Madic M., Radovanovic M.	Application of the performance selection index method for solving machining MCDM problems	Scientific Journal Facta Universitatis, series Mechanical Engineering, Vol.12, No.12, 2014, ISSN: 0354-2025.
		2.	Madic M., Gecevska V., Radovanovic M., Petkovic D.	Multi-Criteria Economic Analysis of Machining Processes Using the WASPAS Method	Journal of Production Engineering, Vol.17, No.2, 2014, ISSN: 1821-4932, 79-82.
		3.	Jovanovski R.B., Gecevska V., Polenakovik R., Sutevski D., Stankovska I.	Business Model as a Success Factor for the Companies Growth	ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering, Tome XIII [2015] – Fascicule

						3, August 2015.
		4.	Gecevska V., Caloska J., Polenakovik R., Donev V., Jovanovski R. B.	Integration of Lean Principles and Safety Management System		Mechanical Engineering – Scientific Journal, Vol.33, No 3, 2015, ISSN 1857-5293, pp. 221-225.
		5.	Golcev V., Jovanoski B., Gecevska V., Minovski R.	KANBAN Simulation Model for Production Process Optimization		Journal of Engineering Management and Compettitiveness, Vol.5, No.2, 2015, ISSN: 2217-8147, pp.55-60.
		6.	Gecevska V., Donev V., Polenakovik R.	A Review of Environmental Tools towards Sustainable Development		ANNALS of Faculty Engineering Hunedoara – International Journal of Engineering, Vol.14, No.1, 2016, ISSN: 1584-2665.
	12.2.	Доказ за најмалку два печатени научноистражувачки трудови во меѓународни научни списанија со импакт фактор во дадената област во последните пет години				
		v	Автори	Наслов		Издавач/година
		1.	Gecevska V., Kuzinovski M., Cus F., Tomov M.	Modelling of Cutting Tool Wear and Cutting Tool Life for Face Milling Operations		Journal of the Balkan Tribological Association, Vol.22, No.3A-I, 2016, pp.3013-3025. ISSN: 1310-4772, Publ. SciBulCom Ltd. [Indexed in WoS SCI journals, IF=0,735]
		2.	Gecevska V., Donev V., Polenakovik R.	Mass Customization as Aided Value Tool in New Product Development Process		Int. Journal of Innovative Research in Science, Engineering and Technology, Vol.4, Issue 11, 2015, pp.346-355. ISSN 2319-8753. [Global IF=1,762 for 2015]
	12.3.	Доказ за најмалку три учества на меѓународни собири во последните четири години				
		No.	Author	Title	International meeting/conference	year
		1.	Gecevska V.	Application of the Analytical Hierachy Process for Decision Making	Proceedings of 7th International Conference of Management of Technology Step to Sustainable Production	2015

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

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)	Ljubomir Drakulevski		
2.	Date of birth	06 June , 1962		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Economics		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in Economics	1998	Faculty of Economics-Skopje
		M. Sc. in Economics	1995	Faculty of Economics-Skopje
		B. Sc. in Economics	1987	Faculty of Economics-Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Economics	Management	Strategic management
7.	Area, field and area of doctoral degree	Area	Field	Specialty
		Economics	Management	Leadership - A Basis for Effective Strategic Management
8.	If employed, state the	Institution	Title and area	

	institution where he/she works and the title and area in which is named		Ss. Cyril and Methodius University in Skopje Faculty of Economics-Skopje	Full time professor

.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	International Management	Management
		2.	Strategic Management	Management
		3.	Organizational Behavior	Marketing, Financial Management, Accounting and Auditing, International Trade, Management, Economics, E-business
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/institution
		1.	Strategic Management	MBA-Management
		2.	Organizational Behaviour	MBA-Management, Accounting and audit ,(two years studies), Strategic management of human resources
		3.	Corporate governance	Managing the public sector, Strategic management of human resources
		4.	Strategic Management of E-Business	E-Business Management, E-business management (two years studies)
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/institution
		1.	Strategic management	Organizational science and management
		2.	International management	Organizational science and management
		3.	Organizational behavior	Organizational science and management

10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Boskov, T. and Drakulevski, L	Strategic and Finance Management–Determining Factors for the Success of the Companies in the Business Worldpp.119-123.	Calitatea-acces la success (Quality-Access to Success), 18(157), 2017
		2.	Drakulevski, Lj., Nakov L	“Business Model for Diagnosing and Changing the Organizational Culture”,	Proceedings from the 10th International Scientific Conference – Economic (2015),Integration, Competition and Cooperation, Faculty of Economics – Rijeka an d 24 Co-organizers, 22-24 April, Opatija, Croatia, pp.71-82.

		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.	Participation in scientific national and international projects (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Drakulevski Lj.	PoSsible project funded by Erasmus+	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.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Drakulevski, L, Ilieva, V., Brudermann, T.	I"Yes, we know!"(Over) confidence in general knowledge among Austrian entrepreneurs.	*PloS one*, *13*(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.	*STRATEGIC MANAGEMENT*, *2 1*(2), pp.23-31. 2016

		5.	Drakulevski, Lj., Nakov L.	"Organizational Flexibility and Change for Managing the Business Continuity", , Croatia, Istambul, 9-10 April, pp. 442-450.	*Proceedings from the 9th International Scientific Conference on Economic and Social Development*, VADEA, Istambul, 9-10 April, pp. 442-450. 2015

11.	Supervision (mentorship) of undergraduate, master and doctoral studies students		
	11.1.	Undergraduate	Over 85
	11.2.	Master	Over 50
	11.3.	Doctoral	Over 15

12.	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			
		No.	Author	Title	Publisher/year
		1.			
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.			

	12.3.	Proof of at least three international meetings' participation in the past four years				
		No.	Author	Title	International meeting/conferenc	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)	Jovana Jovanova		
2.	Date of birth	August 04, 1985		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in Mechanical	2015	Faculty of Mechanical
		M. Sc. in Mechanical Engineerin	2010	Faculty of Mechanical engineering - Skopje
		B. Sc. in Mechanical Engineerin	2008	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mechanical engineering	Mechatronics
7.	Area, field and area of	Area	Field	Specialty
	doctoral degree	Technical	Mechcanical engineering	Mechanical systems
8.	If employed, state the	Institution		Title and area

	institution where he/she works and the title and area in which is named		UKIM, Faculty of Mechanical Engineering	Assistant professor in Mechanical systems

.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	Mechanics 2	All academic programs at the Faculty of Mechanical engineering
		2.	Introduction to mechatronics	V semester / Faculty of Mechanical engineering
		3.	Mechanisms in robotics	VII semester, Mechatronics / Faculty of Mechanical engineering
		4.	Strength of materials	All academic programs at the Faculty of Mechanical engineering
		5.	Basics of mechatronics systems	All academic programs at the Faculty of Mechanical engineering
	9.2.	List of courses that the teacher is lecturing in the second cycle		
		No.	Course	Study program/institution
		1.	Applied mechanics	Mechanics and mechanical systems
		2.	Modelling and simulation of mechatronics systems	Mechanics and mechanical systems/Mechatronics
		3.	Experimental research, measurements and data processing	Mechanics and mechanical systems
		4.	Sensors and actuators	Mechanics and mechanical systems/Mechatronics
		5.	Design of mechatronics systems	Mechanics and mechanical systems/Mechatronics
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/institution
		1.		
		2.		

10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		No.	Author	Title	Publisher/year
		1.	Jovanova J., Frecker M., Hamilton R.F., Palmer T.A.	Target shape optimization of functionally graded shape memory alloy compliant mechanisms	Journal of intelligent Material Systems and Structures, October 2017
		2.	Jovanova J., Gavriloski V	Analytical and experimental modeling of a smart beam	Journal of vibroengineering, vol.16, Issue 7, pp 3409-3418, ISSN 1392 - 8716

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

		5.			
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				
	11.1.	Undergraduate	9		
	11.2.	Master	0		
	11.3.	Doctoral	0		
12.	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			
		No.	Author	Title	Publisher/year
		1.			
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			
		No.	Author	Title	Publisher/year
		1.			
	12.3.	Proof of at least three international meetings' participation in the past four years			
		No.	Author	Title	International meeting/conferenc / 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)	**Robert Minovski**		
2.	Date of birth	20.11.1964		
3.	Scientific degree / Title	Ph.D.		
4.	Title of the scientific degree	Ph.D. in Technical Sciences		
5.	Year and institution of the scientific degree	Education	Year	Institution
		PhD in Technical Sciences	1999	Faculty of Mechanical engineering - Skopje
		M.Sc. in Mechanical Engineering	1994	Faculty of Mechanical engineering - Skopje
		B.Sc. in Mechanical Engineering	1989	Faculty of Mechanical engineering - Skopje
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Technical sciences	Mechanical Engineering	
7.	Area, field and area of doctoral degree	Area	Field	Specialty
		Technical sciences	Industrial Engineering and	
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution		Title and area
		UKIM, Faculty of Mechanical Engineering		Full time professor Mechanical engineering

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	Design of Information Systems	Industrial Engineering and Management
		2.	Management of Information	Industrial Engineering and Management
		3.	Work Study	Industrial Engineering and Management
		4.	Production Systems	Industrial Engineering and Management
	9.2.	List 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 Organizations	Industrial Engineering and Management
		3.	Contemporary Production Systems	Industrial Engineering and Management
		4.	Motivation and Compensation Systems	Industrial Engineering and Management
	9.3.	List of courses that the teacher is lecturing in the third cycle		
		No.	Course	Study program/institution
		1.	Performance Measurement Systems	Industrial Engineering and Management
		2.	Integrated Quality Management processes	Industrial Engineering and Management
		3.	Approaches for modeling and Simulation of	Industrial Engineering and Management
		4.	Managerial production philosophies	Industrial Engineering and Management
10.	Selected work in the past five years			
	10.1.	Relevant scientific printed paper (up to 5)		
		No.	Author	Title	Publisher/year
		1.	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
		2.	B. Jovanoski, R. Minovski, D. Jovanoski	Modelling and Simulation of Business Processes: Review and Recommendations	Development of Intelligent 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. Minovski, S. Voessner and G. Lichtenegger	Combining system dynamics and discrete event simulations - overview of hybrid simulation models	Journal of Applied Engineering Science, Vol. 10 No. 3, pp. 135–142/2013
		4.	S. Srebrenkoska, A. Kochov, R. Minovski	Six sigma and design of experiments for improving the production of composite pipes	Journal for Technology of Plasticity, Vol. 41(2016), Number 2, pp.11-18

		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.	Participation in scientific national and international projects (up to 5)			
	No.	Author	Title	Publisher/year
	1.	R. Minovski et al.	Joint Simulation Model for 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.	Printed books in the last five years (up to 5)			
	No.	Author	Title	Publisher/year
	1.	Р. Миновски	Менаџмент информациски	УКИМ / во печат
		Р. Миновски	Виртуелна фирма	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.	Printed professional papers in the last 5 years (up to 5)			
	No.	Author	Title	Publisher/year
	1.	B. Jovanoski, R. Polenakovik, V. Gecevska, R. Minovski	Applying a suitable simulation approach for processes on different management levels	Proceedings of 16th 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.	Supervision (mentorship) of undergraduate, master and doctoral studies students		
	11.1.	Undergraduate	Over 20
	11.2.	Master	Over 10
	11.3.	Doctoral	3

12.	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			
		No.	Author	Title	Publisher/year
		1.	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
		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	Modelling and Simulation of Business Processes: Review and Recommendations	Development of Intelligent and Innovative Tools for Production Process Engineering and Sustainable Management, Scientific Monography, Chapter 8, p.p. 81-96, Maribor-Skopje/2013
	4.	S.Stanisavljev, D. Ćoćkalo, D. Đorđević, R. Minovski	The production cycle time in serial production: reduction of the duration in metal processing industry case	Journal of Applied Engineering Science, 2013, vol. 11, No. 3, pp. 115-122 / 2013
	5.	D. Ćoćkalo, D. Đorđević, S. Bogetić, D. Sajfert, R. Minovski	Quality of Business, Entrepreneurship Education and Business start up Intentions Among Students in Serbia: Research Results	Journal "Industrija", Vol.41, No.3, pp. 135-145 / 2013
	6.	B. Jovanoski, R. Minovski, D. Jovanoski	Modelling and Simulation of Business Processes: Review and Recommendations, Development of Intelligent and Innovative Tools for Production Process Engineering and Sustainable	Scientific Monography, Chapter 8, p.p. 81-96, Maribor-Skopje / 2013

12.2. Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years

No.	Author	Title	Publisher/year
1.	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
2.	B. Jovanovski, R. Minovski, D. Jovanoski	Assessment of the Press Replacement Using Simulation	Journal for Technology of Plasticity, Vol. 37 (2012), Number 2, pp. 161-171/2012
3.	D. Jovanoski, R.Minovski, G. Kostovska, B. Jovanovski	Modeling & Simulation as Tools for Optimisation of Material Flow in Production Systems	Journal for Technology of Plasticity, Vol. 37 (2012), Number 1, pp. 23-34/2012
4.	R. Minovski, B. Jovanoski, P. Galevski	Lean implementation and implications: experiences from Macedonia	International Journal of Lean Six Sigma (accepted for publishing)

12.3. Proof of at least three international meetings' participation in the past four years

No.	Author	Title	International meeting/conference	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	**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)	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 and institution of the scientific degree	Education	Year	Institution
		Ph.D in Mathematical	2015	Faculty of Natural Sciences and Mathematics
		M. Sc. in Mathematical	2012	Faculty of Natural Sciences and Mathematics
		B. Sc. in Mathematics	2006	Faculty of Natural Sciences and Mathematics
6.	Area, field and particular specialty of master of science degree	Area	Field	Specialty
		Natural and Mathematical sciences	Mathematics	Analysis and Functional Analysis
7.	Area, field and area of doctoral degree	Area	Field	Specialty
		Mathematical sciences	Mathematics	Graph Theory
8.	If employed, state the institution where he/she works and the title and area in which is named	Institution		Title and area
		UKIM, Faculty of Mechanical Engineering		Assistant Professor Mathematics
9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1. List of courses that the teacher is lecturing in the first cycle			
	No.	Course	Study program/institution	
	1.	Mathematics 1	All	

		2.	Mathematics 2	All	
	9.2.	List of courses that the teacher is lecturing in the second cycle			
		No.	Course	Study program/institution	
		1.	Probability Models and Simulations	Mechatronics	
		2.	Selected Topics in Probability and	Menagament of Product Life Cycle	
		3.	Probability and Statistics	Sustainable Energy and Environment	
	9.3.	List of courses that the teacher is lecturing in the third cycle			
		No.	Course	Study program/institution	
		1.			
10.	Selected work in the past five years				
	10.1.	Relevant scientific printed paper (up to 5)			
		No.	Author	Title	Publisher/year
		1.	M. Petruševski	Odd 4-edge-colorability of graphs	J. Graph Theory Vol. 87 (4) pp . 460-474, (2018)
		2.	B. Lužar, **M. Petruševski**, R. Škrekovski	On vertex-parity edge-colorings	J. Comb. Optim. Vol. 35 (2) pp . 373-388, (2018)
		3.	**M. Petruševski**, R. Škrekovski	A note on acyclic number of planar	Ars Math. Contemp. Vol. 13, pp . 317-322, (2017)
		4.	R. Atanasov, **M. Petruševski**, R. Škrekovski	Odd edge-colorability of subcubic graphs	Ars Math. Contemp. Vol. 10 (2), pp . 359-370, (2016)
		5.	A. Harutyunyan, R. Naserasr, **M. Petruševski**, R. Škrekovski, Q. Sun	Mapping planar graphs into the Coxeter graph	Disc. Math. Vol. 339 (2), pp. 839-849, (2016).
	10.2.	Participation in scientific national and international projects (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
		2.			
	10.3.	Printed books in the last five years (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
	10.4.	Printed professional papers in the last 5 years (up to 5)			
		No.	Author	Title	Publisher/year
		1.			
		2.			
		3.			
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students				
	11.1.	Undergraduate			
	11.2.	Master			
	11.3.	Doctoral			
12.	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			
		No.	Author	Title	Publisher/year
		1.			
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five years			

		No.	Author	Title	Publisher/year	
		1.				
	12.3.	Proof of at least three international meetings' participation in the past four years				
		No.	Author	Title	International meeting/conference	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)	**Bojan Prangoski**		
2.	Date of birth	29.7.1984		
3.	Scientific degree/Title	Ph.D		
4.	Title of the scientific	Ph.D in mathematics		
5.	Year and institution of the scientific degree	Education	Year	Institution
		Ph.D in mathematics	2013	Faculty of Sciences, University of Novi Sad, Serbia
		M.Sc in mathematics	2010	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 specialty of master of science degree	Area	Field	Specialty
		Natural Sciences and Mathematics	Mathematics	Analysis and Functional analysis
7.	Area, field and particular specialty of doctoral degree	Area	Field	Specialty
		Natural Sciences and Mathematics	Mathematics	Analysis and Functional analysis
8.	If employed, state the institution where he/she Works and the title and area in which is named	Institution	Title and area	
		"Ss. Cyril and Methodius" University in Skopje, Faculty of Mechanical Engineering	Assistant professor, mathematics	

9.	List of courses that the teacher is lecturing separately for first, second and third cycle			
	9.1.	List of courses that the teacher is lecturing in the first cycle		
		No.	Course	Study program/institution
		1.	Linear algebra and vector analysis	Motor Vehicles; Transport, Mechanization and Logistics; Materials, Processes and Innovation; Manufacturing Engineering/ Faculty of Mechanical engineering - Skopje
		2.	Numerical methods	All study programs at the Faculty of Mechanical engineering - Skopje

		3.	Object oriented programming	Industrial engineering and management / Faculty of Mechanical engineering - Skopje	
	9.2.	List of courses that the teacher is lecturing in the second cycle			
		No.	Course	Study program/institution	
		1.	Advanced computer programming	Mechatronics / Faculty of Mechanical engineering - Skopje	
		2.	Selected topics in Applied Mathematics	Sustainable Energy and Environment / Faculty of Mechanical engineering - Skopje	
	9.3.	List of courses that the teacher is lecturing in the third cycle			
		No.	Course	Study program/institution	
10.	Selected work in the past five years				
	10.1.	Relevant scientific printed papers (up to5)			
		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.	Participation in scientific national and international projects (up to5)			
		No.	Author	Title	Publisher/year

		1.	**B. Prangoski**, project coordinator from Macedonia; countries: Macedonia, Serbia	``Microlocal analysis and applications''	Bilateral project between the Macedonian and Serbian Academies of Sciences and Arts, 2016-2017	
		2.	**B. Prangoski**, project coordinator from Macedonia; countries: Macedonia, Serbia	``Microlocal analysis and applications''	Bilateral project between the Macedonian and Serbian Academies of Sciences and Arts, 2018-2019	
	10.3.	Printed books in the last five years (up to5)				
		No.	Author	Title	Publisher/year	
	10.4.	Printed professional papers in the last 5 years (up to5)				
		No.	Author	Title	Publisher/year	
11.	Supervision (mentorship) of undergraduate, master and doctoral studies students					
	11.1.	Undergraduate		0		
	11.2.	Master		0		
	11.3.	Doctoral		1		
12.	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				
		No.	Author	Title	Publisher/year	
		1.				
		2.				
		3.				
		4.				
		5.				
		6.				
	12.2.	Proof of at least two printed scientific papers in international scientific journals that have impact factor in the related field in the past five ears				
		No.	Author	Title	Publisher/year	
		1.				
		2.				
	12.3.	Proof of at least three international meetings' participation in the past four years				
		No.	Author	Title	International meeting/ conference	year
		1.				
		2.				
		3.				

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 Annex 5, 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: www.mf.edu.mk.

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

О Д Л У К А
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.

Универзитет "Св. Кирил и Методиј" во Скопје
Машински факултет - Скопје
Декан

Проф. д-р Дарко Данев

ANNEX 2

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

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

О Д Л У К А
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 *Универзитетски гласник.*

РЕКТОР

Проф. д-р Никола Јанкуловски

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

М И С Л Е Њ Е
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

Наташа Јаневска

ANNEX 4

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

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

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 потпис

Проф. д-р Атанас Кочов

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од Љубомир Дракулевски, во звање професор, 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 MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES на втор циклус студии при Машински факултет – Скопје на предметот:

1. Feasibility study design
2.
3.

Своерачен потпис

Проф. д-р Љубомир Дракулевски

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

И З Ј А В А

Од Анита Грозданов во звање редовен професор, вработена на Технолошко-металуршки 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. Grozdanov

_____

Проф. Д-р Анита Грозданов

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од д-р Валентина Гечевска, 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 циклус студии при Машински факултет – Скопје на предметот:

1. Intelligent processes and smart technologies

Своерачен потпис

Проф. д-р Валентина Гечевска

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од Емилија Целакоска во звање вонреден 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 циклус студии при Машински факултет – Скопје на предметот:

1. Geometric Transformations and Deformations in 3D

Своерачен потпис

Вон. Проф. д-р Емилија Целакоска

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

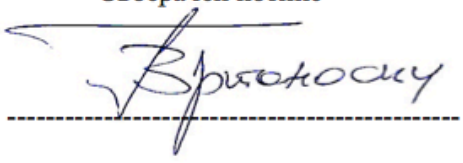
ИЗЈАВА

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



Проф. д-р Глигорче Вртаноски

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

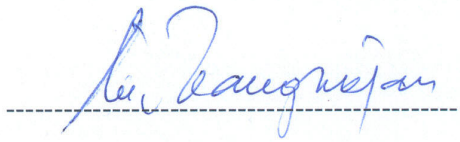
ИЗЈАВА

Од Татјана Кандикјан , 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 циклус студии при Машински факултет – Скопје на предметот:

1. Design of Plastic Parts
2.
3.

Своерачен потпис



Проф. д-р

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од Јована Јованова, во звање доцент, 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 MODELING AND SIMULATION OF PLASTIC DEFORMATION TECHNOLOGIES AND PROCESSES (MSPDTP) на втор циклус студии при Машински факултет – Скопје на предметот:

1. SENSORS & ACCURATORS

Своерачен потпис

Доц. д-р Јована Јованова

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од доц. д-р Ташко Ризов, во звање доцент, 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 (MSPDTP) на втор циклус студии при Машински факултет – Скопје на предметот:

1. AUGMENTED REALITY & 3D VISUALIZATION
2.
3.

Своерачен потпис

Доц. д-р Ташко Ризов

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

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

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од Бојан Јованоски, во звање доцент, 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 Modeling and simulation of plastic deformation 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

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

ИЗЈАВА

Од Бојан Прангоски во звање доцент, 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 циклус студии при Машински факултет – Скопје на предметот:

1. MATLAB Programming

Своерачен потпис

Доц. д-р Бојан Прангоски

Врз основа на членот 2 од Правилникот за задолжителни компоненти кои треба да ги поседуваат студиските програми од првиот, вториот и третиот циклус студии ја давам следната

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

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. 05.02 2019 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

О Д Л У К А

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

Д Е К А Н

Проф. д-р Љубомир Дракулевски

Република Македонија
Универзитет "Св. Кирил и Методиј"-Скопје
Технолошко-металуршки факултет
Бр. 02-96/2
29.01.2019 год.

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

ТЕХНОЛОШКО-МЕТАЛУРШКИ ФАКУЛТЕТ

Република Македонија
Универзитет "Св. Кирил и Методиј"-Скопје
МАШИНСКИ ФАКУЛТЕТ
СКОПЈЕ

Примено: 30-01-2019			
Орг. Един.	Број:	Прилог:	Вредност:
03	194/1		

МАШИНСКИ ФАКУЛТЕТ - Скопје
За Наука / Истражување
Датум: 30.01.2019
Потпис:

До: Машински факултет Скопје

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,

Д е к а н

Проф.д-р Јон Магдески

Изработил:Д.Анческа

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 Методиј", Скопје
Технолошко-металуршки факултет

Република Македонија
УНИВЕРЗИТЕТ СВ. КИРИЛ И МЕТОДИЈ"-СКОПЈЕ
МАШИНСКИ ФАКУЛТЕТ
СКОПЈЕ

Бр. 02-96/1
28.01.2019 год.

Примено: 30-01-2019			
Орг. Един.	Број:	Прилог:	Вредност:
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, Наставно-научниот совет на Технолошко-металуршки факултет на својата 34-та редовна седница одржана на 24.1.2019 година ја донесе следнава

О Д Л У К А
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

Д е к а н
Проф.д-р Јон Магдески

Изработил: Д.Анческа

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