Study program: PRODUCTION ENGINEERING (3 years)

I Semester-First year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Mathematics I	8	3+2+2	216
Mechanical materials	8	3+2+2	216
Computer Science	6	2+2+1	156
Elective subject from the faculty 1	4	2+1+1	120
Elective subject from the faculty 2	4	2+1+1	120
Total:	30	12+8+7	828

I Semester-First year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Basics of Physics	4	2+1+1	120
Physics II	4	2+1+1	120
Electrotechnics and elektronics	4	2+1+1	120
Casting technology	4	2+1+1	120

II Semester-First year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Mathematics II	8	3+2+2	216
Engineering graphics	6	2+2+1	156
Technical Mechanics I (statics)	6	2+2+1	156
Elective subject from the faculty 3	4	2+1+1	120
Elective subject from the University 1	6	0+0+1	156
Sports and Recreation	0	0+0+2	
Total:	30	9+7+11	804

II Semester-First year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
The modern mechanical materials	4	2+1+1	120
Engineering logistics	4	2+1+1	120

IIISemester-Second year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Thermodynamics	8	3+2+2	216
Strength of materials	8	3+2+2	216
Technical Mechanics II (kinematics, dynamics, oscillations)	6	2+2+1	156
Elective subject from the faculty 4	4	2+1+1	120
Elective subject from the faculty 5	4	2+1+1	120
Total:	30	12+8+7	828

IIISemester-Second year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Corrosion and corrosion protection	4	2+1+1	120
Probability and statistics	4	2+1+1	120
Ergonomics	4	2+1+1	120
Industrial Management	4	2+1+1	120

IVSemester-Second year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Machine elements	8	3+2+2	216
Fluid Mechanics	6	2+2+1	156
Numerical methods	6	2+2+1	156
Elective subject from the faculty 6	4	2+1+1	120
Elective subject from the University 2	6	0+0+4	156
Total:	30	9+7+9	804

IVSemester-Second year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Measurement and measuring instruments	4	2+1+1	120
Heat transfer	4	2+1+1	120

V Semester-Third year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Thermo-technical machines	8	3+2+2	216
Processing using cutting and plastic	8	3+2+2	216
deformation	0	JTZTZ	210
CAD technology	6	2+2+1	156
Elective subject from the faculty 7	4	2+1+1	120
Elective subject from the faculty 8	4	2+1+1	120
Total:		12+8+7	828

V Semester-Third year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Sustainable energy systems	4	2+1+1	120
Machinery for transport	4	2+1+1	120
Engineering economics	4	2+1+1	120
Basics of internal combustion engines	4	2+1+1	120

VI Semester-Third year			
Mandatory subjects			
SUBJECTS	ECTS	Hours	Total
Machines and tools for plastic processing	8	3+2+2	216
Metal cutting machines and devices	6	2+2+1	156
Elective subject from the University 3	6	2+2+1	156
Elective subject from the faculty 9	4	2+1+1	120
Final Exam	6	0+0+6	144
Total:	30	9+7+11	792

VI Semester-Third year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Mechatronics	4	2+1+1	120
Waste management	4	2+1+1	120

FACULTY OF MECHANICAL ENGINEERING –STADY PROGRAM: PRODUCTION ENGINEERING

	ex No.3	Program of the Cou	rse - fir	st cycle studies	<u> </u>				
		11 ogrum or the cou	150 111	st cycle studies	,				
1.	Title of t	he Course	M	athematics 1					
2.	Code			2FI100112					
3.	Study Pr	ogram	Pre	oduction Engine	eerin	g /			
	•	O		ansport, Organi			gistics		
4.	Organize	er of the study progra		niversity Goce I			<u> </u>		
	(unit or i	nstitute, Faculty,	Fa	culty of mechar	nical	engineer	ing -Vin	ica	
	departm	ent)							
5.	Cycle (fin	rst, second and third	Fin	rst cycle					
6.		c year / semester	fir	st/first	7.	Numbe	er of	8	
		·				credits			
8.	Professo	r (s)	Pr	of. Jordan Zivaı	<u>10vi</u> l	R PhD			
9.		nents for enrollment	no						
	the Cour								
10.		s of the curriculum (c							
		tics knowledge and int		on to higher mat	hem	atics			
11.		of the course program			_				
	Axiomatic definition of the real numbers. Limited sets. Intervals, environments, open								
	and closed sets. Absolute value and distance. Mathematical induction. Matrices. Operations with matrices. Some special matrices. Determinants. Minor and algebraic								
		ents. Calculating the ir							
		Collection of vectors. I							
		ector and mixed productions and planes. Real s							
		ous sequences. Operati							
		mited grow in absolute		-		-	-	<i>.</i> 011003	
		ences. Kauchy's sequer			-			real	
		basic concepts. Exam							
		ry functions. Limits an	-						
		ulation. Basic theorem		•					
		mes. Second derivative				1		2	
		ion of graphs. Higher-o							
12.	Learning	g methods:							
		laboratory exercises, r	numeric	al exercises, e-l	earni	ing, semi	nar work	ζ,	
		x, consultation							
13.		ailable time		216 hours					
14.		tion of available time	ı	3+2+2 / per					
15.		f teaching / learning	15.1.	lectures / theo		cal -	3		
	activities	}		contact teach	ing,				
			45.5	e-teaching			2		
i			15.2.	theoretical an	d pr	actical	2		
				exercises,					

				e-exams, preparation independent seminal work			
16.	Other	forms of activities	16.1.	Project tasks		1	
	16		16.2.	Individual tasks		1	
			16.3.	Home learning			
17.	Metho	od of assessment	<u>I</u>				
	17.1.	Tests / oral exams	70 p	ooints			
	17.2.	2. Seminars (paper / project - presentation: written and/or oral)				10 points	
	17.3.	Activity and participat	ion		20 points		
18.	Assess	sment Criteria (points /	u	ıp 50 points	5(five) (F)		
	score)		5	51 to 60 points	6(six) (E)		
			6	of 1 to 70 points	7 (seven) (D)		
			7	'1 to 80 points	8 (ei	ght) (C)	
			8	31 to 90 points	9 (ni	ne) (B)	
				1 to 100 points		en) (A)	
19.	_	ture requirement and		50% success from all pr			
	passir	ng the final exam	-	oints from two mid-ter		·	
				paper, attendance of lect	tures a	and exercises	
20.	Langu	uage of teaching / study	N	Macedonian			
21.	Metho of tea	od of monitoring the qua	ality S	Self-evaluation			

. Litera									
	Requ	ired literature							
	No.	Author	Title	Publisher	Year				
22.1.	1.	Glyn James	Modern engineering mathematics	Translation of the government of RM	2009				
	2.	Zivanovik and Assistants	Lectures and exercises of mathematics 1	E-learning	2010				
	3.	B.Trpenovski, N.Celakovski, Gj,Cupona	Visa matematika I-IV	Prosvetno delo, Skopje	1995				
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.	M.Merkle	Matematicka analiza	Racunarski fakultet, Beograd	2006				
	2.	Ivan Slapnicar http://www.fesb.hr/mat1	Matematika 1	Fakultet elektr. strojarstva i brodogradnje	2002, Split				
	3.	*							

Ann	ex No.3	Program of the Course	- first cycle studie	C C				
		1 rogram of the Course	- msi cycle studie	3				
1.		he Course	Mechanical mate	erials	S			
2.	Code		2MF100112					
3.	Study Pr	rogram	Production engine and Logistics	eering	g/Transport Orgai	nization		
4.	Organize	er of the study program	University Goce	Delce	ev-Stip			
	(unit or i departm	nstitute, Faculty,	Faculty of mecha	nical	engineering -Vin	ica		
5.	•	rst, second and third	First cycle					
	cycle)	,	J					
6.	Academi	c year / semester	First/I semester	7.	Number of credits	8		
8.	Professor	r(s)	Slavco Cvetkov,	PhD,				
9.	Requirer the Cour	nents for enrollment	No					
10.	have competences obtained through the necessary fund of theoretical, methodological and applicative studying in the area of mechanical materials. 11. Content of the course program:							
11.		roduction to the materials						
	2. Division and structure of metals							
	3. Al	loys and state diagram						
	4. Ste	eels: Obtaining and labelling	ng					
	5. Ca	rbon steels: structural and	tool steels					
	6. Al	loy steel: structural and too	ol steels					
	7. He	eat treatment of steels						
		rface hardening of steels						
		st iron: gray iron and mall						
		on ferrous metals and their	•					
		ramics, glass and composi						
		lymers and non metals (wo	ood, leather, rubber	;)				
12.	•	g methods: g, exercises, projects assign	nment					
13.	Total ava	ailable time	216					
14.	Distribut	tion of available time	3+2+2 /	per v	week			

1 =	T.	64 1 1 1 1	151	1 4 441 42 1	1	2	
15.		s of teaching / learning	15.1.		-	3	
	activit	ties		contact teaching,			
				e-teaching			
			15.2.	<u> </u>		2	
				exercises,			
				e-exams, preparation			
				independent semina	r		
				work			
16.	Other forms of activities		16.1.	Project tasks		1 hours	
			16.2.	Individual tasks		1 hours	
			10.2.	iliuiviuuai tasks		1 Hours	
			16.3.	Home learning		/ hours	
17.		od of assessment			1		
	17.1.	Tests / oral exams			70	points	
	17.2.	Seminars (paper / proj	ject - p	ct - presentation: written 10		oints	
		and/or oral)					
	17.3.	Activity and participat	ion		20 points		
18.	Assess	sment Criteria (points /		up 50 points	5(five) (F)		
	score)			51 to 60 points	6(six	(E)	
				61 to 70 points	7 (se	ven) (D)	
				71 to 80 points	8 (ei	ght) (C)	
				81 to 90 points	9 (ni	ne) (B)	
				91 to 100 points	10 (t	en) (A)	
19.	Signa	ture requirement and		60% success from all pr			
	passin	ng the final exam		pointsfrom two mid-terr			
				paper, attendance of lec	tures a	and exercises	
20.	Langu	age of teaching / study		Macedonian			
21.	. Method of monitoring the quality			Self-evaluation			
	of tea	ching					

22.	Literature									
		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	1.	Angel Tasevski, PhD Vladan Andonovic, MsC	Mechanical materials	UGD - Stip	2011				
		2.	Angel Tasevski, PhD Vladan Andonovic, MsC	Mechanical materials estimation	UGD - Stip	2011				
		3.								
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

	nex No.3 Program of the Course - fi									
1.	Title of the Course	Computer Science								
2.	Code	2FI110112								
3.	Study program	Production Engineer	_							
1		Transport, Organiza								
4.	Organizer of the study program (unit or institute, Faculty,	University Goce De Faculty of mechanic								
	department)	raculty of mechanic	ai ci	ignicering - v inica	l					
5.	Cycle (first, second, or third study	First study cycle								
	cycle)									
6.	Academic year / semester	2012-2013 / first	7.	Number of credits	6					
8.	Professor (s)	Assi. Professor Zora	ın Zo	dravev, PhD						
9.	Requirements for enrollment the Course	No								
10.	Purposes of the curriculum (compete	encies):								
	- Adopting the basic concepts of computer science and concepts for using computers for									
	communication, research and of	ffice work.								
11.	Contents of the course program:	Contents of the course program: - Introduction to computer science: algorithms, abstraction, history,								
	- Computer hardware: introduction, types, architecture of computer systems, Murau law									
	- Computer hardware: Peripherals, Computer Memory, digital identification;									
	- Computer software: applicative software, open source software licenses;									
	- Computer software: system soft		Ū							
	- Computer software: web service	es, online document st	orag	e and editing syste	ems,					
	- Computer networks: LAN, MA components, connectivity;	N, WAN, topologies,	appl	ications that run o	n network					
	- Computer networks: Internet, in	ntranet, extranet, Intern	net s	ervices;						
	 Computer security: a concept, a cryptography; 	security risk, malicio	us so	oftware, unauthori	zed access					
	- Information systems: introducti	on, types, ERP, CRM,	HR	, SCM;						
	- Content Management Systems	CMS: DMS, DAMS, V	WCN	M, ECP, ERS;						
	- Databases: fundamentals, types	, use								
			20 is	adividual and taan						
12.	Learning methods: Lectures, Laborate	ory exercises, e-learnii	ig, ii	idividuai and tean	n					
12. 13.	Learning methods: Lectures, Laborate projects, consultations. Total available time	156 hours	1g, 11		n 					

15.	Forms of teaching / learning activities	15.1.	lectures / theoretical - contact teaching, e- teaching		2
		15.2.	theoretical and practic exercises, e-exams, preparation of independent seminar v		2
16.	Other forms of studying	16.1.	Project tasks		
	activities	16.2.	Individual tasks		1
		16.3.	Home learning		
17.	Method of assessment				
	17.1. Tests / oral exams				ints
	17.2. Seminars (paper / project and/or oral)	- prese	sentation: written 10 pc		ints
	17.3. Activity and participation			20 points	
18.	Assessment Criteria (points / score	e) U	Jp 50 points	5 (fiv	e) (F)
		5	51 to 60 points	6 (six	(E)
		6	51 to 70 points	7 (sev	ven) (D)
		7	'1 to 80 points	8 (eig	(ht) (C)
		8	31 to 90 points	9 (nir	ne) (B)
		9	1 to 100 points	10 (te	en) (A)
19.	Signature requirement and passin		50% of pre-exam activities		
	the final exam		from 2 midterm exams, pro		
			ttending of lectures and d	iscuss	ions
20.	Language of teaching / study	N	Macedonian		
21.	Method of monitoring the quality teaching	of S	Self-evaluation		

22.	Literatu	ire							
		Requir	red literature						
		Order No.	Author	Title	Publisher	Year			
	22.1.	1.	Zoran Zdravev and other	Computer Science script	UGD	2012			
		2.	Zoran Zdravev and other	Practicum in Computer Science	UGD	2012			
		3.							
		Additional Literature							
		Order No.	Author	Title	Publisher	Year			
	22.2.	1.	Glenn Brookshear	"Computer Science – an overview"	Pearson International edition	2009			
		2.	Carl Reynolds and Paul Tymann	"Principles of Computer Science"	McGraw Hill	2008			
		3.	James O'Brien	"Introduction to Information Systems "	McGraw Hill	2008			

Anr	nex No.3	Program of the Course	- first/second/thir	d cy	cle studies			
1.	Title of t	the Course	Basics of Physics					
2.	Code		2FP120512					
3.	Study Pr	rogram	Production Engin	eerii	ng			
4.	Organiz	er of the study program	University Goce	Delc	ev			
		institute, Faculty,	Faculty of mecha	nical	l engineering			
	departm	ent)	-					
5.	Cycle (fi	rst, second and third	First cycle					
	cycle)							
6.	Academi	ic year / semester	1/1	7.	Number of credits	4		
8.	Professo	r (s)	Prof. Todor Delip	etro	v, PhD			
9.	Requirer Course	ments for enrollment the	enrolled semester					
10.	Purposes	s of the curriculum (comp	etencies):					
	Students	are introduced to the basic	concepts and laws	of pl	hysics (Newton's	laws,		
	Hooke's	law), elasticity and plastici	ty of bodies					
11.	Content of the course program: Test methods in physics, structure of matter, interaction. Reference system - comparative body trajectory and separation movements, Special Theory of Relativity (time dilation and length contraction). Laws for the movement, the concept of force, Newton's first law, mass, Newton's Second Law, Newton's Third Law. Work, energy and power. Elasticity and structure of bodies: voltage and relative deformation, Hooke's law. Oscillations, alignment fluctuations. Fluid mechanics. Statics gases. Fluid dynamics. Wave motion. Sound and sound sources.							

12.		ing methods: res, exercises (numerical a	nd pra	actical), papers and hom	e leari	ning		
13.	Total	available time		216 hours				
14.	Distri	bution of available time		2 + 1 + 1 / per wee	ek			
15.	Form activi	s of teaching / learning ties	15.1	lectures / theoretica contact teaching, e-teaching	l -	2		
				. theoretical and practical exercises, e-exams, preparation independent semination work		1		
16.	Other forms of activities			. Project tasks				
				. Individual tasks		1		
	16.3.			. Home learning				
17.	Metho	od of assessment						
	17.1.	Tests / oral exams			70 points			
	17.2.	Seminars (paper / proj and/or oral)	ect -]	presentation: written	10 points			
	17.3.	Activity and participati	ion		20 p	points		
18.	Assess	sment Criteria (points /		up 50 points	5	(five)	(F)	
	score)			51 to 60 points	6	(six)	(E)	
			-	61 to 70 points	7	(seven)	(D)	
			-	71 to 80 points	8	(eight)	(C)	
			-	81 to 90 points 91 to 100 points	9	(nine) (ten)	(B) (A)	
19.	Signa	ture requirement and		60% success from all a		\ /	()	
1).		ng the final exam					aiii	
	passing the imai exam			i.e. 42 points from two mid-term exams, seminar paper, attendance of lectures and exercises				
20.	Langu	uage of teaching / study		Macedonian				
21.	Metho of tea	od of monitoring the qua	lity	Self-evaluation				

22.	Literature										
•		Requ									
		No.	. Todor Delipetrov Physics 1 RGF .	Publisher	Year						
	22.1.	1.	Todor Delipetrov	Physics 1	RGF	2003					
		2.									
		3.									
•		Additional literature									
	22.2.	No.	Author	Title	Publisher	Year					
		1.	Lj. Petkovski	General physics	UKIM	1995					

	2.	Z. Stojanov	General physics, book 1	UKIM	1985
	3.				

Ann	ex No.3									
		Program of the Coun	rse - fi	rst/second/thir	d cy	cle studi	es			
1.	Title of t	he Course	P	Physics 2						
2.	Code			FP101212						
3.	Study Pr	ogram								
4.		er of the study progra	m U	niversity Goce	Delc	ev				
	_	nstitute, Faculty,		aculty of mecha			ring			
	departm	, , ,					6			
5.	_	rst, second and third	F	rst cycle						
	cycle)			J. J						
6.		c year / semester	1/	2	7.	Numbe	er of	4		
•		- J		_		credits				
8.	Professo	r (s)	P	rof. Todor Deli	petro	1		l		
9.		nents for enrollment 1		tudent has enro			ear			
•	Course					0.220220) 0				
10.		of the curriculum (co	ompete	encies):						
		are introduced to the ba			of el	lectromag	gnetism, o	ptics,		
		nd atomic physics		1			,	1 /		
11.		of the course progran	1:							
		perature, spread of boo		ite of gas, melti	ng, b	oiling, va	aporizatio	n.		
		atics: Coulomb's law, e		•	_	_				
		aw, Ohm's law, therma						,		
		ility. AC: effective value						current,		
	electrical	oscillations. Geometric	cal opti	cs: light rejecti	on an	d image	in the flat	mirror,		
	thin lens	equation, optical instru	ments.	Physical optics	: nati	are of lig	ht, laser, c	ptical		
		tomic and nuclear phys								
	radioactiv	ve radiation, detectors a	and pro	tection, radioac	tive o	decay lav	v	·		
12.		g methods:				•				
	Lectures,	exercises (numerical a	nd prac	ctical), papers a	nd ho	ome learn	ning			
			-	_						
13.	Total ava	ailable time		156 hours						
14.	Distribut	tion of available time		2 + 2 + 1 / 1	per w	eek				
15.	Forms of	teaching / learning	15.1.	lectures / the	oreti	ical -	2			
	activities			contact teach	ning,					
				e-teaching	-					
			15.2.	theoretical a	nd		2			
				practical exe	rcise	s,				
				e-exams, pre		*				
				independent	_					
				work						
16.	Other fo	rms of activities	16.1.	Project tasks	5					
				-						

			16.2.	Individual tasks		1	
			16.3.	Home learning			
17.	Metho	od of assessment				•	
	17.1.	Tests / oral exams			70 p	oints	
	17.2.	Seminars (paper / proj and/or oral)	ect - pr	resentation: written	10 p	ooints	
	17.3.	Activity and participati	on		20 pc	oints	
18.	Asses	sment Criteria (points /	υ	ıp 50 points	5	(five)	(F)
	score)		5	51 to 60 points	6	(six)	(E)
			6	of 1 to 70 points	7	(seven)	(D)
			7	1 to 80 points	8	(eight)	(C)
			8	31 to 90 points	9	(nine)	(B)
			9	1 to 100 points	10	(ten)	(A)
19.	Signa	ture requirement and	ϵ	50% success from all a	ctivitie	es before ex	am
	passir	ng the final exam	i	.e. 42 points from two	mid-te	erm exams,	
			s	eminar paper, attendar	nce of	lectures and	1
			e	exercises			
20.	Langu	uage of teaching / study	N	Macedonian			
21.	Metho	od of monitoring the qua	lity S	Self-evaluation			
	of tea	ching					

2. Litera	Literature										
	Required literature										
	No.	Author	Title	Publisher	Year						
22.1.	1.	M. Delipetrev B. Doneva	Physics 2	UGD	2013						
	2.										
	3.										
	Additional literature										
	No.	Author	Title	Publisher	Year						
22.2.	1.	Z. Stojanov	General physics, book 2	UKIM	1985						
	2.										
	3.										

Annex No.3 Program of the course–first cycle studies						
1.	Title of t	the Course	Electrotechnics and Electronics			
2.	Code		2ET110012			
3.	. Study program		Production Engineering /			
			Transport, Organization and Logistics			

4.	Organizer of the study program	m Uı	University Goce Delcev-Stip					
	(unit or institute, Faculty,	Fa	Faculty of mechanical engineering -Vinica					
	department)	a et	151					
5.	Cycle (first, second, or third study cycle)	180	cycle					
6.	-	1 st	/ 1 st	7. Numbe	er of 4			
•	Academic year / semester		, 1	EKTS				
8.	Professor (s)		oman Golubovsl	,	Professor			
9.	Requirements for enrollment of	of en	rolled 1st semes	ter				
10.	the course Purposes of the curriculum (competencies):							
10.	Introduction to basic principles of electrotechnics and electronics.							
11.	1 0							
	1. Electric Current - Intensity, Current Field, Density							
	2. Electric Voltage and Pote	ential						
	3. Basic Laws - Joul's, Ohm	n's, I &	II Kirchhoff's					
	4. Magnetic Flux, Magnetic	Field a	andMagnetism					
	5. Magnetic Induction, Am	pere's L	aw and Magnet	ic Circuit				
	6. Electrical Measurements							
	7. Semiconductors							
	8. Diodes							
	9. BJT Transistors							
	10. MOSFET Transistors							
	11. Thyristors							
	12. Operational Amplifiers							
12.	Learning methods: Lectures, no	umerica	al exercises, ind	ividual and t	eam projects,			
12	homework.		120					
13. 14.	Total available time Distribution of available time		120 2+1+1					
15.	Forms of teaching / learning	15.1.	lectures / theo	retical -	2			
	activities		contact teachi	ing, e-				
			teaching					
		15.2.	theoretical an		1			
			exercises, e-ex preparation o	,				
			independent s					
			work					
16.	Other forms of studying activities	16.1.	Project tasks					
	WO DATA A LA CO	16.2.	Individual tas	sks	1			
		16.3.	Home learnin	g				

17.	Metho	od of assessment			
	17.1.	Tests / oral exams		70 points	
	17.2.	Seminars (paper / project - and/or oral)	presentation: written	10 points	
	17.3.	Activity and participation		20 points	
18.	Assess	sment Criteria (points /	Up 50 points	5 (five) (F)	
	score))	51 to 60 points	6 (six) (E)	
			61 to 70 points	7 (seven) (D)	
			71 to 80 points	8 (eight) (C)	
			81 to 90 points	9 (nine) (B)	
			91 to 100 points	10 (ten) (A)	
19.	Signa	ture requirement and	60% of pre-exam activi	ties or minimum 42	
	passir	ng the final exam	1 -	exams, project activities	
			and attending of lectures and discussions		
20 .	Langu	uage of teaching / study	Macedonian		
21.	Metho	od of monitoring the quality	Self-evaluation		
	of tea	ching			

22.	Litera	Literature										
		Requir	Required literature									
	22.1.	Orde	Author	Title	Publisher	Year						
İ		r										
		No.										
		1.	M. Popnikolova-Radevska	Electrotechnics	TF, Bitola	2004						
		2.	M. Kamilovski	Electronics 1	UKIM, Skopje	2005						
		Additional Literature										
		Orde	Author	Title	Publisher	Year						
	22.2	r										
		No.										
		1.										

Anı	nex No.3	ogram of the Course	- first cycle studies	5		
1.	Title of the	Course	Casting technolo	gy		
2.	Code		2MF101812			
3.	Study Progr	am	Production engine	erin	g/	
			Transport Organiz	zatio	n and Logistics	
4.	Organizer o	f the study program	University Goce Delcev-Stip			
	(unit or inst	itute, Faculty,	Faculty of mechanical engineering -Vinica			
	department)				
5.	Cycle (first, cycle)	First cycle				
6.	Academic y	ear / semester	First / I semester	7.	Number of 4 credits	

8.	Professor (s)	S	lavco Cvetkov, PhD, A	ssistan	t Professor					
9.	Requirements for enrollment No									
- •	the Course									
10.	Purposes of the curriculum (co	ompet	encies): At the end of the	ne cou	rse, students will					
10.	have competences obtained thro									
	and applicative studying in the a			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2, 1110111001010810111					
11.	Content of the course program		ousting toomistsgj.							
	1.I ntroduction to the casting									
	2. Casting materials									
	3.Casting metallurgy									
	4. Sand casting									
	5. Centrifugal casting									
	6. Precise casting									
	7. Vacuum casting									
	8.Casting under pressure									
	9.Heaters for melting									
	10.Tools for casting									
	11.Construction tools for casting	g								
	12. Defects in casting									
12.	Learning methods:									
	-Teaching, exercises, projects as	ssignm	ent							
		_								
12	Total available time		120							
13.				.1.						
14.	Distribution of available time	151	2+1+1 / per wee		2					
15.	Forms of teaching / learning activities	15.1.		l -	2					
	activities		contact teaching, e-teaching							
		15.2.		tical	1					
		13.4.	exercises,	ııcaı	1					
			e-exams, preparatio	n of						
			independent semina							
			work	1						
16.	Other forms of activities	16.1.			/ hours					
10.	other forms of detrivines	10.1.	9		7 110 615					
		16.2.	Individual tasks		1 hours					
		1(2	TT 1		/ 1					
		16.3.	Home learning		/ hours					
17.	Method of assessment									
	17.1. Tests / oral exams			70	points					
	17.2. Seminars (paper / proj	ect - n	recentation: written		oints					
	and/or oral)	icci - p	resentation: written	10 p	Omis					
	17.3. Activity and participat	ion		20 pc	oints					
10	v i		50 noi4-							
18.	Assessment Criteria (points /	-	up 50 points		e) (F)					
	score)		51 to 60 points	6(six	, , ,					
		-	61 to 70 points		ven) (D)					
			71 to 80 points	1	ght) (C)					
			81 to 90 points		ne) (B)					
			91 to 100 points	10 (t	en) (A)					

19.	Signature requirement and passing the final exam	60% success from all pre exam activities i.e. 42 pointsfrom two mid-term exams, seminar paper, attendance of lectures and exercises
20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality	Self-evaluation
	of teaching	

22.	Litera	Literature										
		Required literature										
		No.	Author	Title	Publisher	Year						
	22.1.	1.	Zoran Anisic	Production technologies	Visa Tehnicka Skola	2003						
		2.										
		3.										
		Additional literature										
		No.	Author	Title	Publisher	Year						
	22.2.	1.										
		2.										
		3.										

Ann	nex No.3	Program of the Course	- first cycle studies	3			
1.	Title of t	he Course	Mathematics II				
2.	Code		2FI100412				
3.	Study Program		Production Engin	eerin	ng /		
			Transport, Organi	zatio	on and Logistics		
4.	Organize	er of the study program	University Goce I			·	
	(unit or i	institute, Faculty, ent)	Faculty of mechanical engineering -Vinica				
5.	Cycle (fi	rst, second and third	First cycle				
6.	Academi	ic year / semester	First/II	7.	Number of credits	8	
8.	Professo	r (s)	Prof. Martin Luka	revs	ki PhD /	•	
			Prof. Jordan ZivanovikPhD				
9.	Require	ments for enrollment	Enrollment of the	first	cycle study progr	am	
	the Cour	se					
10.	Purposes of the curriculum (com		petencies):				
		ge and understanding of th			-	es,	
	knowledg	ge of ICT in mathematics,	flexible use of know	vledg	ge in practice.		
11.	Content	of the course program:					

- **13. The concept of Integral Calculus:** Indefinite integral integration by substitution and integration by parts, fundamental integration formulas, Definite integral-concept, properties and applications.
- **14. Infinite series:** Criteria for convergence, alternating series, Conditional and absolute convergence. Sequences and series of functions. Power series. Circle of convergence.
- **15. Multivariate Calculus:** definition, properties and graphics of functions with several variables; Partial derivatives; Maximum and minimum values; The total differential.
- 16. Multiple integrals.
- **17. Introduction of differential equations:** Terminology and notation; A first-order differential equation for the exponential function; First-order linear differential equations and other types of first-order differential equations.

12. **Learning methods:**

- Lectures,
- e-learning,
- individual and team projects
- Consultations.

13.	Total available time		216		
14.	Distribution of available time		3+2+2 / per week		
15.	Forms of teaching / learning	15.1.	lectures / theoretical	-	3
	activities		contact teaching,		
			e-teaching		
		15.2.	theoretical and prac	tical	2
			exercises,		
			e-exams, preparatio		
			independent semina	r	
			work		
16.	Other forms of activities	16.1.	Project tasks		1 hours
		16.2.	Individual tasks		1 hours
		16.3	Home learning		hours
17.	Method of assessment				
	17.1. Tests / oral exams			70 p	oints
	17.2. Seminars (paper / proj	iect - 1	resentation: written	•	oints
	and/or oral)	ject - j	resentation. Written	10 P	omes
	17.3. Activity and participat	ion		20 pc	oints
18.	Assessment Criteria (points /		up 50 points	_	e) (F)
10.	score)	-	51 to 60 points	$6(\sin \theta)$, , ,
	score)	-	_	` `	, , ,
			61 to 70 points	/ (se	ven) (D)

		71 to 80 points	8 (eight) (C)		
		81 to 90 points	9 (nine) (B)		
		91 to 100 points	10 (ten) (A)		
19.	Signature requirement and	60% of pre-exam activities or minimum 42			
	passing the final exam	points from 2 midterm exams, project activities			
		and attending of lectures and discussions			
20.	Language of teaching / study	Macedonian			
21.	Method of monitoring the quality	Self-evaluation			
	of teaching				

22. Liter	iterature										
	Requ	Required literature									
	No.	Author	Title	Publisher	Year						
	1.	Glyn James	Modern engineering mathematics	Translation of the Government	2009						
22.1.				of R.Macedonia							
	2.	Milan Merkle	Matematicka analiza	Racunarski Fakultet - Beograd	2007						
	3.	Tatjana Atanasova Pacemska	Matematika 2	Avtorizirani predavanja	2011						
	Additional literature										
	No.	Author	Title	Publisher	Year						
22.2.	1.	Nikita Sekutkovski	Matematicka analiza 1	Prosvetno delo - Skopje	2008						
	2.	Boro Piperevski	Matematika 2	FEIT - Skopje	2008						
	3.										

An	Annex No.3 Program of the Course - first cycle studies					
1.	Title of t	he Course	Engineering grap	phics	3	
2.	Code 2FP100912					
3.	Study Pr	ogram	Production Engine	eerin	g /Transport,	
			Organization and Logistics			
4.	Organize	er of the study program	University Goce Delcev-Stip			
	(unit or i	institute, Faculty,	Faculty of mechanical engineering -Vinica			
	departm	ent)				
5.	Cycle (fin	rst, second and third	First cycle			
	cycle)					
6.	Academi	c year / semester	First / second	7.	Number of 6	
			semester		credits	

8.	Profe	ssor (s)	A	Assi. Prof. Slavco Cvetko	ov. Ph	.D.		
9.		irements for enrollment		None	· ·			
	the C							
10.	Purpo	oses of the curriculum (c	ompet	tencies):				
		ng in drawing and reading			ne part	s. Training in		
		ng machine parts in the pr	-	<u> </u>	•	C		
11.	Conte	ent of the course program	n:					
	Technical drawing. Views - basic, special and abbreviated views. Standards. Formats							
	naming and sizes of technical drawings. Types of lines and their application.							
		ical Letter. Sections and t						
	intersections. Labeling and types of quotation. Longitudinal tolerances. The shape and							
		on tolerance. Designation						
		chined parts. Listing of th						
		ation of the mechanical dra						
	_	gonal view. Formation of t		chanical drawing works	hop pa	art of assembled		
12		ng. Technical Documentat	tion					
12.		ning methods:	1	1	41.			
	Lectui	res, exercises, individual v	vorks,	nome learning, consulta	ttions.			
13.	Total	available time		156 hours				
14.		bution of available time		2+2+1 / per week				
15.		s of teaching / learning	15.1.		l _	2 hours		
13.	activities			contact teaching,	_	2 Hours		
	activities			e-teaching				
			15.2.		tical	2 hours		
				exercises,				
				e-exams, preparation	n of			
				independent semina	r			
				work				
16.	Other	forms of activities	16.1.	Project tasks				
			16.2.	Individual tasks	Individual tasks			
			10.2.	iliulviuuai tasks		1 hours		
			16.3.	Home learning				
17.	Moth	od of assessment						
1/.	17.1.	Tests / oral exams			70 r	points		
			lant :					
	17.2.	Seminars (paper / proj and/or oral)	ject - p	presentation: written	10 p	points		
	17.3.	,	ior		20 p	oints		
10		1 2 1		van 5 0 mainte				
18.		sment Criteria (points /		up 50 points		re) (F)		
	score)	1	-	51 to 60 points	· ·	(x) (E)		
				61 to 70 points 71 to 80 points		even) (D)		
						ght) (C)		
			<u> </u>	81 to 90 points	`	ne) (B)		
10	C:	4,, wo wo and J		91 to 100 points		en) (A)		
19.	_	ture requirement and		60% of pre-exam activity				
	passir	ng the final exam		points from 2 midterm e				
				and attending of lecture	s and (uiscussions		

20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality	Self-evaluation
	of teaching	

2. Liter	Literature										
	Requ	Required literature									
	No.	Author	Title	Publisher	Year						
22.1.	1.	Risto Taškovski	Engineering Graphics	Mechanical faculty, Skopje	2008						
	2.										
	3.										
	Addi	Additional literature									
	No.	Author	Title	Publisher	Year						
22.2.	1.										
	2.										
	3.										

Ann	ex No.3 Program of the Course	- first cycle stud	ies			
1.	Title of the Course	Technical Mechanics I (statics)				
2.	Code	2MF100212				
3.	Study Program	Production Engineering /Transport, Organization and Logistics				
4.	Organizer of the study program	University "Goce	Del	cev"- Stip.		
	(unit or institute, Faculty,	Faculty of Mecha	ınica	l Engineering -Vinica	ı	
	department)					
5.	Cycle (first, second and third	First cycle				
	cycle)					
6.	Academic year / semester	First / second 7. Number of credits 6				
8.	Professor (s)	Assi. Prof. Slavco	o Cv	etkov, Ph.D		
9.	Requirements for enrollment the	No				
	Course					
10.	Purposes of the curriculum (comp				forces,	
	moments, carriers, equilibrium of bo	dies, friction, cent	re of	gravity;		
11.	Content of the course program:					
	1.System of forces acting in the plan	e, composition and	d dec	composition of forces	acting	
	at a point;					
	2.Momentof force about a point, Van	_				
	3.System of forces attacking panel u	nel und various counts;				
	4. Graphic alignment of forces, equ					
	5. Planar carriers, transverse and axi	al forces;				
	6.Simple beam loaded with concentr					
	7.Simple beam loaded with a continu		g for	ces; Console;		
	8.Beam with overhangs; Gerber carr					
	9. Statically determined framework	supports; Lattice gi	irder	s;		

			ce; Spatial carrie		:				
		_			tion of the rope;				
12.	12.Centre of gravity line, surface and body; Guldin's theorem Learning methods:								
12.		Lectures, Laboratory exercises, e-learning, individual and team projects, consultations.							
13.		available 1		156 hours	projec	ts, consultat			
14.			available time		2+2+1/ per week				
15.			ng / learning	15.1.	-		2hours		
	activit				contact teaching,				
					e-teaching				
				15.2.	1	al	2hours		
					exercises,	C			
					e-exams, preparation of				
16.	Othor	forms of a	nctivities	16.1.	independent seminar v Project tasks	VOIK			
10.	Other	1011115 01 6	activities	10.1.	1 Toject tasks				
			16.2.	Individual tasks		1 hour			
				16.3.	Home learning				
				10.0.					
17.		od of asses				70			
	17.1.	Tests / or				70			
	17.2.	2. Seminars (paper / project - presentation: written and/or oral)		10					
	17.3.	Activity a	and participati	on		20			
18.	Assess	sment Crit	teria (points /		to 50 points 5(five) (F)				
	score)				from 51 to 60 points 6(six		, , ,		
					*		ven) (D)		
					from 71 to 80 points		ght) (C)		
					from 81 to 90 points		ne) (B)		
10	Cianat	tura racui	nament and		from 91 to 100 points	_ \	en) (A)) mainta	
19.	_	iure requir g the final	rement and		60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and				
	passiii	ig the ima	CAAIII		attending of lectures and			iu	
20.	Langu	age of tea	ching / study		Macedonian				
21.	Ŭ		toring the qual	lity	Self-evaluation				
	of tead								
22.	Litera	iture							
		Require	d literature						
		No.	Author	Γ	Title	Publi	isher	Year	
		1. Simeon			Technical mechanics	UGD)-Stip	2012	
	Simeonov			(peer reviewed script)					
	22.1.	2.	Z.Petrevski,		Tasks from Statics		nanical	2008	
			V. Gavrilovski M. Mickovski	-		tacul	ty Skopje		
		3.	R.Josifova		Technical mechanics 1	Princ	cipal -		
						Skop	je	1981	
	22.2.	Addition	nal literature						
		•							

	No.	Author	Title	Publisher	Year
	1.	B. Andonovic	Technical mechanics 1	Technical	2006
				Faculty- Bitola	
	2.	E. Bahtovska	Mechanics	Technical	
				Faculty- Bitola	
				-	2007
	3.				

Ann	nex No.3	Program of the Course	- first cycle studie	s		
1.	Title of t	the Course	The modern med	chani	ical materials	
2.	Code		2MF101912			
3.	Study Pi	rogram	Production engine and Logistics	eerin	g/Transport Orga	nization
4.		er of the study program institute, Faculty, lent)	University Goce l Faculty of mechan		1	ica
5.	Cycle (fi	rst, second and third	First cycle			
6.	Academi	ic year / semester	First/I semester 7. Number of credits 4			4
8.	Professo	r (s)	Slavco Cvetkov, l	PhD,	Assi. Professor	
9.	Required the Court	ments for enrollment rse	No			
10.	have con	s of the curriculum (competences obtained through icative studying in the area	the necessary fund	d of t	heoretical, metho	
11.	1. Int 2. Th 3. Co 4. In 5. Bi	of the course program: troduction to the newest management of the modern engineering management of the production to fullerenes of the composite of the production to fullerenes of the produc	terials			

	8. Cellular materials							
	9. Nanomaterials							
	10. Ceramics							
	11. Wood, paper and glues							
	12. The procedure of materia	ıl selec	etion					
12.	Learning methods:							
	 Teaching, exercises, project 	cts assi	ignment					
13.	Total available time		120					
14.	Distribution of available time		2 + 1 + 1 / per wee	·k				
15.	Forms of teaching / learning	15.1.			2			
	activities		contact teaching,					
			e-teaching					
		15.2.	1	tical	1			
			exercises,	c				
			e-exams, preparation					
			independent semina work	ı				
16.	Other forms of activities	16.1.						
		16.2.	Individual tasks		1 hour			
					1 Hour			
		16.3.	Home learning					
17.	Method of assessment		•					
	17.1. Tests / oral exams			70 <u>j</u>	points			
	17.2. Seminars (paper / proj	ject - _J	presentation: written	10 p	points			
	and/or oral)			20	•			
10	17.3. Activity and participat	ion		20 pc				
18.	Assessment Criteria (points /		up 50 points	`	(e) (F)			
	score)		51 to 60 points 61 to 70 points		(x) (E)			
			71 to 80 points		even) (D) ght) (C)			
			81 to 90 points		ne) (B)			
			91 to 100 points		en) (A)			
19.	Signature requirement and		60% success from all pr		/ \ /			
	passing the final exam		pointsfrom two mid-term	n exai	ms, seminar			
			paper, attendance of lec	tures a	and exercises			
20.	Language of teaching / study		Macedonian					
21.	Method of monitoring the qua	ality	Self-evaluation					
	of teaching							

_		
	22.	Literature

	22.1.	Required literature									
		No.	Author	Title	Publisher	Year					
		1.	Angel Tasevski, PhD; Vladan Andonovic, MsC	The modern mechanical materials	UGD - Stip	2011					
		2.									
		3.									
		Additional literature									
		No.	Author	Title	Publisher	Year					
	22.2.	1.									
		2.									
		3.									

Anr	nex No.3 Progr	ram of the Course - first cycle studies					
1.	Title of the Course	Engineering logistics					
2.	Code	2MF106712					
3.	Study Program	Production engineering/Transport, organization and logistics					
4.	Organizer of the study Program(unit orinstitute, Faculty, department) University Goce Delcev-Stip Faculty of mechanical engineering -Vinica						
5.	Cycle (first, second and third cycle)	First cycle studies (Bachelor studies)					
6.	Academic year / semester	First/Second semester 7. ECTS 4					
8.	Professor (s)	Prof. Zoran Despodov					
9.	Requirements for enrollment the Course	No					
10.	Purposes of the curriculum (co fundamentals of Engineering better use of the resources	mpetencies): Familiarize students with the logistics, practical application and ways of making a					

11.	Content ofthecourse progra	m:					
	13. Introduction to logistics. 2. Logistics systems in industrial enterprises. 3.						
	Engineering Logistics	and orga	ıniz	ation of production. 4. Suppl	ly of ma	aterials.	
	5. Storage for materials	s. 6. Inte	er op	perational transport. 7. Packa	iging ar	nd	
	storage. 8. Means of tra	ansport i	in tł	ne system of engineering logi	istics. 9).	
	Transportation problem	ns. 10. I	nfor	rmation systems and the activ	vities of	f the	
	logistic system. 11. Log	gistics s	upp	ort of the flexible manufactu	ring. 12	2.	
	Distribution of the fina	l produc	ets.				
12.	Learning methods:						
	-Theory, practical teaching and auditory exercises						
13.	Total availabletime			120			
14.	Distribution of availabletim	e		2+1+1			
15.	Forms of teaching /	15.1.		ctures / theoretical - contac	t	2	
	learning activities			aching, teaching			
		15.2.	. theoretical andpractical exercises,			1	
			e-exams,				
			_	reparationofindependentsei ork	mınar		
16.	Other forms of activities	16.1.	Pr	roject tasks			
		16.2.	2. Individual tasks			1	
		16.3.	Home learning				
17.	Method of assessment						
	17.1. Tests / oral exams				,	70 points	
	17.2. Seminars (paper/pro	oject - p	resc	entation: written and/or		10 points	
	oral)					_	
- 10	17.3. Activity and particip	ation			o	20 points	
18.	Assessment Criteria(points		up 50points			(F)	
	/score)			51 to 60 points	6(six) (E)		
				61 to 70 points	,	ren) (D)	
				71 to 80 points		ht) (C)	
			•			e) (B)	
				91 to 100 points	10 (te	n) (A)	

19.	Signature	60% success from all pre exam activities i.e. 42		
	requirementandpassingthefinal	pointsfrom two mid-term exams, seminar paper,		
	exam	attendance of lectures and exercises		
20.	Language ofteaching / study	Macedonian		
21.	Method ofmonitoringthe	Self-evaluation		
	quality of teaching			

22.	Literature									
		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	1.	T. Pantelic	Industrial logistics	ICIM,	2001				
					Krusevac					
		2.	V. Jocik	Technical logistics	Nis	2001				
		3.								
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

Ann	nex No.3 Prog	gram of the Course	- first cycle studie	es			
1.	Title of the Co	urse	Thermodynamic	:S			
2.	Code		2MF100312				
3.	Study Program	Production engineering / Transport, organization and logistics					
4.	Organizer of t	he study program	University Goce	Delc	ev-Stip		
	(unit or institude department)	Faculty of mechanical engineering -Vinica					
5.	Cycle (first, se cycle)	cond and third	first cycle				
6.	Academic year	r / semester	2/III	7.	Number of credits	8	
8.	Professor (s)		Assistant Prof. Ra	adon	nir Cvetanovski, Ph	D	
9.	Requirements Course	for enrollment the	,				
10.							

11.	Conte	ent of the course progran	1:						
	1. Introductory terms and values of condition; Basic gas laws; Concept of ideal gas								
	and equation of condition of an ideal gas; The main laws of thermodynamics;								
	Specific heat capacity; Changes of condition of ideal gases;								
	2. Circ	2. Circular process; Recoverable and irreversible processes; Entropy; Double phased							
	fixture	fixtures; Real gases; Humid air;							
12.	Learning methods: Lectures with presentations through slides, exercises,								
	indepe	endent preparation and pre	sentati	ion of the project assigr	nment				
13.	Total	available time		216					
14.		bution of available time		3+2+2 / per week					
15.		s of teaching / learning	15.1.		ıl -	3			
100	activi	0	10111	contact teaching,	-				
	ucu vi			e-teaching					
			15.2.	Ü		2			
			10121	practical exercises,					
				e-exams, preparation	on of				
				independent semina					
				work					
16.	Other	forms of activities	16.1.	Project tasks		1 hours			
			16.2.	Individual tasks		1 hours			
			10.2.	iliulviuuai tasks		1 Hours			
			16.3.	Home learning		hours			
17.	Metho	od of assessment							
	17.1.	Tests / oral exams			70 p	ooints			
	17.2.	Seminars (paper / proj	ect - p	resentation: written	10 p	points			
		and/or oral)	•		1				
	17.3.	Activity and participati	on		20 p	oints			
18.	Assess	sment Criteria (points /		up 50 points	5(fiv	ve) (F)			
	score)	_		51 to 60 points		x) (E)			
	ĺ			61 to 70 points	` `	even) (D)			
			_	71 to 80 points	_ `	ght) (C)			
			_	81 to 90 points		ne) (B)			
			_	91 to 100 points		en) (A)			
19.	Signa	ture requirement and		60% from pre-exam ac	1	, , ,			
		ng the final exam		from the two tests, sem		-			
	-			of lectures and exercise	-	÷ ·			
20.	Langu	age of teaching / study		Macedonian					
21.	Metho	od of monitoring the qua	lity	Self-evaluation					
	of tea	0 1							
									

22.	Literat	Literature								
	Required literature									
	22.1.	No.	Author	Title	Publisher	Year				
		1.	Atanas Blazevski	Termodinamika I	UKIM,	1994				

	2.	Atanas Blazevski	Zbirka reseni zadaci po Termodinamika I	UKIM	1996			
	3.							
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.	NedjeljkaPetric, Ivo Vojnović, VanjaMartinac	Tehnicka Termodinamika	Kemisko- tehnoloskiFak ultet - Split	2007			
	2.							
	3.							

Ann	ex No.3 Program of the Cou	rse - fi	rst cycle studie	<u> </u>	
1.	Title of the Course	Str	Strength of materials		
2.	Code	2M	MF100412		
3.	Study Program	Pro	duction Enginee	ring /Transpe	ort, Organization
	· ·	and	Logistics		
4.	Organizer of the study program	Un	iversity "Goce D	elcev"- Stip.	
	(unit or institute, Faculty,	Fac	ulty of Mechani	cal Engineer	ing -Vinica
	department)				
5.	Cycle (first, second and third	Firs	st cycle		
	cycle)				
6.	Academic year / semester			7. Number	
8.	Professor (s)		si. Prof. Simeon		
9.	Requirements for enrollment th	e Att	ended course of	technical me	chanics 1
	Course				
10.	Purposes of the curriculum (con				
	Students are introduced to the mor	ments o	of inertia, the typ	es of stresses	s, dimensioning
11.	Content of the course program:				
	Geometric features of planar secti		,		
	theorem; Tensile and compressive				
	deformation -Hooke's law. Plane				
	bending, bending from forces, stre	_			•
	the bent beam; Elastic deformation			•	
	frameworks and carriers; Bucklin hypotheses of strength, obliquely	_	•	,	*
	and torsion, Complex stresses of		J' 1		` • ′
	of bending and torsion; Cylinder				
	material under dynamic load effect		unck wan, rank	with thin wa	in, Suchgui of the
12.	Learning methods:				
12.	Lectures, Laboratory exercises, e-	learnin	g, individual and	l team projec	ets, consultations.
13.	Total available time		216 hours	z courr projec	<u>, , , , , , , , , , , , , , , , , , , </u>
14.	Distribution of available time		3 + 2 + 2/ per we	eek	
15.		15.1.			3 hours
	activities		contact teachin		
			e-teaching	<i>U</i> ,	
		15.2.	theoretical and	practical	2hours
			exercises,	1	
	<u> </u>				1

						ams, preparation			
16.	Other	forms of	f activities	16.1.		pendent seminar ject tasks	work	1hour	
				16.2.	· ·	ividual tasks		1 hour	
								Thou	
				16.3.	Hor	ne learning			
17.		od of asse							
	17.1.		oral exams				70		
	17.2.	Semina and/or	rs (paper / proj oral)	ect - p	resent	ation: written	10		
	17.3.	Activity	y and participati	on			20		
18.	. Assessment Criteria (points /			to 50 p	oints	5(fiv	ve)(F)		
	score)				from 5	1 to 60 points	6(six	(E)	
				_		1 to 70 points	,	even) (D)	
				<u> </u>		1 to 80 points	,	ght) (C)	
						1 to 90 points	,	ne) (B)	
10	u.	4	• 4 1			1 to 100 points		en) (A)	
19.	•					pre-exam activiti			
	passing the final exam					midterm exams, page of lectures and			ıu
20.	Langi	Language of teaching / study				onian	aiscui	3310113	
21.)		nitoring the qual			aluation			
21.	of tea		moring the qual		Dell ev	araation			
22.	Litera								
		Require	ed literature						
		No.	Author		Title	2	Publ	isher	Year
		1.	Simeon Simeon	iov	Stre (scri	ngth of material pt)	UGI	D-Stip	2011
	22.1.	2.	A.Ilievski, Lj.Todorovska- Azievska, N.Babamov		Stre	ngth of material	Dgit Skop	print - oje	2008
		3.	Lj.Trajkovska			ngth of erial1	UKI	M -Skopje	1993
		Additio	nal literature						
		No.	Author		Title	2	Publ	isher	Year
	22.2.	1.	Lj.Trajkovska			ngth of erial1 Collection	UKI	M -Skopje	1993 1993
		2.	K.Angjusev, D.Korunovski,		Stre	ngth of erial1 Collection	facul	•	2008
			Z.Petreski,G.Ta	isevski	i task	S ,	Skop	oje	2008
		3.							

Ann	Annex No.3 Program of the Course - first cycle studies						
1.	Title of the Course	Te	echnical Mechanics 2(kinema	atics, dynamics,			
		os	cillations)				
2.	Code	2N	MF100612				
3.	Study Program	Pr	oduction Engineering /Transp	ort, Organization			
			d Logistics				
4.	Organizer of the study program		niversity "Goce Delcev"- Stip				
	(unit or institute, Faculty,	Fa	culty of Mechanical Engineer	ring -Vinica			
	department)						
5.	Cycle (first, second and third	Fi	rst cycle				
	cycle)						
6.	Academic year / semester		cond/ third 7. Number				
8.	Professor (s)		ssi. Prof. Simeon Simeonov, P	h.D			
9.	Requirements for enrollment the	he No)				
4.0	Course		• `				
10.	Purposes of the curriculum (co	_	The state of the s				
	Students are introduced to the mo	ovemen	t of bodies, kinematics, dynar	nics and			
1 1	oscillations						
11.	1 6						
	1.Introduction to kinematics, motion particle, velocity, acceleration; 2.Types of motion: rectilinear, harmonic, circle, oblique angle shot;						
	• ·			and plana motion:			
	3. Kinematics of a rigid body, translational motion, rotational motion and plane motion; 4. Composed motion of a rigid body, composition of translations, composition of						
	rotations, composition of translat	•		JOSHIOH OI			
	5. Introduction to dynamics, dyna			tion of motion			
	types of motion;	annes o	r partiere, arrierentiatiar equa-	non or motion,			
	6.Laws of mechanics, impulse as	nd worl	of force, amount of motion.	kinetic energy.			
	potential energy;	,, 011	. 01 10100, 00110 01 111002011,	initions onergy,			
	7.Dynamics of material systems,	princip	les of mechanics: Lagrange-D)'Alembert			
	principle;		2 2				
	8. Moments of inertia of a body,						
	9.Rigid body dynamics, translati	on mot	ion, rotation motion, plane m	otion;			
	10.Oscillations general, free osci		· • • • • • • • • • • • • • • • • • • •				
	resistance of oscillations is propo						
	11. Forced oscillations without re			sistance (damped);			
4.5	12Application of oscillations in a	techni	que.				
12.	Learning methods:	1 .					
10	Lectures, Laboratory exercises, e	-learnii		ets, consultations.			
13.	Total available time		156 hours				
14.	Distribution of available time	1 5 1	2 +2 +1/ per week	2 h aug			
15.	Forms of teaching / learning	15.1.	lectures / theoretical -	2 hours			
	activities		contact teaching,				
		15.2.	e-teaching	2hours			
		13.2.	theoretical and practical exercises,	ZHOUIS			
			e-exams, preparation of				
			independent seminar work				
16.	Other forms of activities	16.1.	Project tasks				
10.	Once forms of activities	10.1.	110ject tasks				

				16.2.	Individual tasks		1 hour		
				16.3.	Home learning				
17.	Method of assessment								
	17.1.	Tests / or	ral exams			70			
	17.2.	Seminars and/or or		ect - pi	esentation: written	10			
	17.3.	Activity	and participation	on		20			
18.	Assess	sment Cri	teria (points /	1	to 50 points	5(fiv	e)(F)		
	score)		_	1	from 51 to 60 points	6(six	(E)		
				1	from 61 to 70 points	7 (se	ven) (D)		
				<u> </u>	from 71 to 80 points		ght) (C)		
					from 81 to 90 points	9 (ni	ne) (B)		
					from 91 to 100 points		en) (A)		
19.			rement and		60% of pre-exam activity				
	passing the final exam				from 2 midterm exams,			nd	
20	Laman	of 4oo	abina / atrada		attending of lectures and discussions Macedonian				
20.	Language of teaching / study								
21.	Metho of teac		itoring the qual	ity	Self-evaluation				
22.	Litera	ature							
		Require	d literature						
		No.	Author		tle	Publis	sher	Year	
	22.1.	1.	S.Simeonov Z.Sovreski		echnical mechanics peer reviewed script)	UGD-	-Stip	2011	
	22.1.	2.	E,Vetijakoska		inematics, dynamics, cillations	Mech facult	anical y-Skopje	2008	
		3.	E,Vetijakoska	K	inematics		anical y-Skopje	2009	
		Addition	nal literature					•	
		No.	Author	Ti	tle	Publis	sher	Year	
		1.	B. Andonovic	Te	echnicalmechanics1	Techr	nical	1996	
	22.2.				ollection of solved oblems	Facul	ty- Bitola		
		2.	S. Guric		ynamics and theory of cillation		anical y-beograd	1981	
		3.	I . Mickovski	M	echanisms and		anical	2001	
			Lj. Azievska	os	cillations	facult	y-Skopje		

Anı	nex No.3	Program of the Cours	e - first cycle studies	
1.	Title of t	he Course	Corrosion and corrosion protection	
2.	Code		2MF102112	

3.	Study Program	Production engineering/Transport Organization					
_			Logistics		.		
4.	Organizer of the study		versity Goce Del		-	Vinico	
	program (unit or institute, Faculty, department)	rac	ulty of mechanica	ıı enş	gmeering	; - v iiiica	
5.	Cycle (first, second and third	d Fire	st cycle				
	cycle)		n eyele				
6.	Academic year / semester	Sec	ond/IIIsemester	7.	Numbe	er of	4
					credits		
8.	Professor (s)		i. Professor Slavo	co Cv	etkov, P	hD	
9.	Requirements for enrollmen the Course	t No					
10.	Purposes of the curriculum (compet	encies): At the en	d of	the cours	se, student	ts will
	have competences obtained th	_					
	and applicative studying in the	e area of	the materials corn	osio	n and pro	otection.	
11.	Content of the course progra						
	1. Introduction to the corro	sion					
	2. Corrosion in water solu	tions					
	3. Pitting corrosion						
	4. Contact corrosion						
	5. Corrosion under mecha	nical fac	tors				
	6. Procedures for metals p	rotectio	1				
	7. Protection with electroc	le poten	ial				
	8. Anode protection						
	9. Protection with surface	coating					
	10. Electrochemical proced	ures for	metals protection				
	11. Coating metals protecti	on					
	12. Constructive methods f	or metal	s protection				
12.	Learning methods:						
	-Teaching, exercises, projects	assignm	ent				
13.	Total available time		120				
14.	Distribution of available tim	e	2 + 1 + 1 / pe	er we	ek		
15.	Forms of teaching /	15.1.	lectures / theore	etical		2	
	learning activities		contact teaching	g,			
		15.2.	e-teaching	nvec	tical	1	
		13.4.	theoretical and exercises,	prac	ucal	1	
	<u> </u>		CACI CIBCB,				

				e-exams, preparation	of		
				independent seminar			
				work			
16.	16. Other forms of activities 16.		16.1.	Project tasks			
			16.2.	Individual tasks		1 hour	
	16.		16.3.	Home learning			
17.	Metho	od of assessment		-1		L	
	17.1.	Tests / oral exams			70 p	points	
	17.2. Seminars (paper / project - presentation and/or oral)				10 p	ooints	
	17.3.	Activity and particip	ation		20 p	oints	
18.	Asses	sment Criteria (points	s/ t	ıp 50 points	5(fiv	re) (F)	
	score)		5	51 to 60 points		6(six) (E)	
			6	of to 70 points	7 (se	even) (D)	
			7	1 to 80 points	8 (ei	ght) (C)	
			8	31 to 90 points	9 (ni	ne) (B)	
			9	1 to 100 points	10 (ten) (A)		
19.	Signa	ture requirement and	6	50% success from all pre	exam a	activities i.e. 42	
	passing the final exam			ointsfrom two mid-term			
			a	attendance of lectures and	exerc	ises	
20.	Langu	uage of teaching / stud	ly N	Macedonian			
21.		od of monitoring the cy of teaching	S	Self-evaluation			

22.	Litera	ture							
		Required literature							
		No.	Author	Title	Publisher	Year			
	22.1.	1.	H.J. Svetomir	Corrosion and protection	Skopje - TMF	1989			
		2.	M. Milenkovic	Corrosion and protection	Belgrade	1966			
		3.							
		Additional literature							
		No.	Author	Title	Publisher	Year			
	22.2.	1.							
		2.							
		3.							

Ann	Annex No.3 Program of the Course - first cycle studies					
1.	1. Title of the Course		Probability and statistics			

	T							
2.	Code		2FI130712					
3.	Study Program	Pr	oduction Engine	erin	g /Transp	ort, Orgai	nization	
		an	and Logistics					
4.	Organizer of the study progra	am Ui	niversity Goce D	Pelce	v - Stip			
	(unit or institute, Faculty,	Fa	culty of mechan	ical	engineeri	ng-Vinica	a	
	department)		•					
5.	Cycle (first, second and third	Fi	rst cycle					
	cycle)		J					
6.	Academic year / semester	Se	cond/IV	7.	Number	r of	4	
	,				credits			
8.	Professor (s)	Pr	of. Tatjana Atan	asov		ska. Ph.D	I	
9.	Requirements for enrollment		rollment of the					
7.	the Course		ironnient of the	11150	e yele stat	aj progra		
10.	Purposes of the curriculum (c	omnete	ncies).					
10.	Knowledge and understanding			d the	ories of n	robability	z and	
	statistics and their flexible use i			u tiic	ories or p	nobability	y and	
11			ce.					
11.	Content of the course program		. D 1 E	•	4 D 1 -	4		
	Basic concepts of the probabilit							
		Probability space. The axioms of probability. Classical definition of probability.						
	Geometric definition of probability. Conditional probability. Total probability. Bayes' theorems or rule. Bernoulli' scheme. Approximate theorems of the Bernoulli'							
							C	
	scheme. Discrete and continuou							
	the mathematical expectation, variance and standard deviation. Functions of rando							
variables. Law of large numbers. Chebyshev' Inequality. Central limit theorem.						1.		
	Descriptive statistics. Confiden	ce inter	vals. Tests of hy	poth	esis.			
12.	Learning methods:							
	– Lectures,							
	a lagraina							
	– e-learning,							
	 individual and te 	am pro	ects					
		1 .						
	Consultations.							
13.	Total available time		120					
14.	Distribution of available time		2+1+1 / per	weel	ζ.			
15.	Forms of teaching / learning	15.1.	lectures / theo	retio	cal -	2		
	activities		contact teachi	ng,				
			e-teaching					
		15.2.	theoretical an	d pr	actical	1		
			exercises,	1.				
			e-exams, prep	arat	ion of			
	independent seminar							
			work					
16.	Other forms of activities	16.1.	Project tasks			hours		
10.	outer forms of activities	10.1.	110ject tasks			nours		
		16.2.	Individual tas	ks		1 hours		
		16.3.	Home learnin	g		hours		
l								

17.	Metho	od of assessment				
	17.1.	Tests / oral exams		70 points		
	17.2.	Seminars (paper / project - and/or oral)	10 points			
	17.3.	Activity and participation	20 points			
18.	1		up 50 points	5(five) (F)		
	score)		51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	Signa	ture requirement and	60% of pre-exam activit	ties or minimum 42		
	passir	ng the final exam	points from 2 midterm e	· 1 3		
			and attending oflectures	and discussions		
20.	Langu	uage of teaching / study	Macedonian			
21.	Metho of tea	od of monitoring the quality ching	Self-evaluation			

F		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	1. Risto Malceski		Voved vo teorijata na verojatnosta	FON	2006				
		2.	Željko Pauše	Uvod u matematičku statistiku	Školska knjiga, Zagreb	1993				
		3.	Nikola Tuneski, Biljana Jolevska-Tuneska	Zbirka reseni zadaci po Verojatnost i statistika	Masinski Fakultet - Skopje	2011				
		Addit	ional literature			•				
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

Anı	nex No.3	Program of th	Program of the Course - first/second/third cyclestudies			
1.	Title of the	he Course	Ergonomics			
2.	Code		2MF106812			

3.	Study Program		oduction engine d logistics	ering/Trans	sport, organiza	ation	
4.	Organizer of the study		niversity Goce D	Pelcev-Stip			
	Ç		Faculty of mechanical engineering -Vinica				
	program(unit orinstitute,						
	Faculty, department)						
5.	Cycle (first, second and third	l Fi	rst cycle studies	(Bachelor	studies)		
	cycle)						
6.	Academic year / semester		econd /third mester	7.	ECTS	4	
8.	Professor (s)	As	ssi. Prof. Dejan I	Mirakovski	, PhD	,	
9.	Requirements for enrollmen the Course	t No	O				
10.	Purposes of the curriculum(c	ompete	encies):				
	Introduction to ergonomics and its principles, ergonomic design of the works						
	work place, characteristics of	he wor	k place and orga	nization.			
11.	Content ofthecourse program	n:					
	1.Introduction to ergonomics, 2. Anthropometric aspect of the man-machine system,						
	3. Ergonomic principles, 4. Ergonomics as a field for quality improvement, 5.						
	Ergonomic design of the work	space in	n modern offices	s, 6. Ambie	nt perception,	7.	
	Impact of lighting in working	conditio	ons, 8. Presentat	ion of visua	al information	, 9.	
	Workplace and its organization, 10. Design for special groups of people, 11. Human						
	errors, accidents and safety at	work, 1	2. Rhythm of th	e body, wo	rking ability a	ınd	
	effects of the alcohol.						
12.	Learning methods:						
	 Lectures, exerc 	ises, inc	dividual tasks				
13.	Total availabletime		120				
14.	Distribution of availabletime	;	2+1+1 / pe	r week			
15.	Forms of teaching /	15.1.	lectures / theo	retical - co	ontact	2	
	learning activities		teaching, e-teaching				
		15.2.	theoretical and e-exams, preparationof work	•	ŕ	1	

16.	Other	forms of activities	16.1.	Project tasks	hours	
			16.2.	Individual tasks	1 hours	
			16.3.	Home learning	hours	
17.	Metho	od of assessment			·	
	17.1.	Tests / oral exams			70 points	
	17.2.	Seminars (paper/pro oral)	ject - p	resentation: written and/or	10 points	
	17.3.	Activity and participa	ation		20 points	
18.	Assess	sment Criteria(points		up 50points	5(five) (F)	
	/score)		51 to 60 points	6(six) (E)	
				61 to 70 points	7 (seven) (D)	
				71 to 80 points	8 (eight) (C)	
				81 to 90 points	9 (nine) (B)	
				91 to 100 points	10 (ten) (A)	
19.	Signa	ture	6	60% of pre-exam activities or min	nimum 42	
	requi	rementandpassingthefi	inal p	points from 2 midterm exams, pro	oject activities	
	exam		а	and attending of lectures and disc	ussions	
20.	Langu	uage ofteaching / study	·	Macedonian		
21.	Metho	od ofmonitoringthe	5	Self-evaluation		
	qualit	y of teaching				

22.	Literat	ure								
		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	2.	Prof. R. Polenakovik	"Ergonomics" (customized lectures)	UKIM, Faculty of Mechanical Engineering, Skopje	2007				
		3.	 ional literature							
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

Anr	Annex No.3 Program of the Course - first cycle studies					
1.	Title of the Course	Industrial Management				
2.	Code	2MF106912				
3.	Study Program	Production Engineering /Transport, Organization and Logistics				
4.	Organizer of the study	University Goce Delcev-Stip				
	program (unit or institute,	Faculty of mechanical engineering -Vinica				
5.	Faculty, department) Cycle (first, second and third	First cycle				
٥.	cycle (first, second and time a rust cycle)					
6.	Academic year / semester	Second/Third 7. Number of 4				
0	D 6	semester ECTS credits				
8.	Professor (s) Assi. Prof. Misko Dzidrov, Ph.D					
9.	Requirements for enrollment the Course	No				
10.		petencies):Learning of managerial functions: planning,				
	organizing and staffing, leadership					
11.	Contents of the course program					
	Introduction to Manageme	ent				
	2. Problem solving and decis	sion making				
	3. Information and information	on systems				
	4. Fundamentals of organizat	tional communication				
	5. Organizational communication	ation - flows, networks and types				
	6. Management by objectives	s and managerial function of planning				
	7. Managerial function of org	ganizing: division and grouping of work				
	8. Managerial function of organizational design	ganization: coordination, management range and				
	9. Organizational conflicts					
	10. Staffing and Motivating					
	11. Styles of leadership and ty	pes of managers				
	12. Systems and processes in o	controlling				
12.	Learning methods:					
	Interactive teaching, exercises, incand individual-study.	dividual and/or team work on projects, consultations				

13.	Total	availabletime		120 hours			
14.	Distri	bution of availabletime		2+1+1			
15.		s of teaching / ng activities	15.1.	lectures / theoretical - contact teaching, e-teaching		2	
	15.2			theoretical andpractical exercises, e-exams, preparationofindependentseminar work			
16.	Other	forms of activities	16.1.	Project tasks			
			16.2.	Individual tasks		1	
			16.3.	Home learning			
17.	Metho	od of assessment					
	17.1.	Tests / oral exams		70		70 points	
	17.2.	Seminars (paper/proje oral)	ect - pi	presentation: written and/or		10 points	
	17.3.	Activity and participat	tion			20 points	
18.	Assess	sment Criteria(points		up 50points	5(five	e) (F)	
	/score)		1 to 60 points	6(six)	` ′	
				1 to 70 points	,	ren) (D)	
				1 to 80 points		ht) (C)	
				1 to 90 points		e) (B)	
10	Ciama	4		1 to 100 points		n) (A)	
19.	Signa			0% of pre-exam activities or min			
	requi	rementandpassingthefin	al f	rom 2 midterm exams, project ac	ctivities	s and	
	exam			ttending of lectures and discussi	ons		
20.	Langu	uage ofteaching / study	N	Macedonian			
21.	Metho	od ofmonitoringthe qual	lity S	elf-evaluation			
	of tea	ching					

22.	Literature									
		Required	Required literature							
		Order No.	Author	Title	Publisher	Year				
	22.1.	1.	T. Kralev	Management Principles Part 1	CIM	2001				
		2.								
		3.								

	Addition	al literature			
	Order	Author	Title	Publisher	Year
	No.				
	1.	T. Kralev	Management Principles	CIM	2005
			Part 1		
22.2.	2.	T. Kralev	Management Principles	CIM	2005
			Handbook		
				Faculty for	
	3.	V. Bulat	Industrial Management	Industrial	2007
	٥.	v. Duiat	industriai wanagement	Management -	2007
				Kruševac	

	ex No.3 Program of the Cou					
1.	Title of the Course	Ma	Machine elements			
2.	Code	2M	F100712			
3.	Study Program		_	eering /Transpo	ort, Organiz	zation
			Logistics			
4.	Organizer of the study program		•	Delcev"- Stip.		
	(unit or institute, Faculty,	Fac	ulty of Mecha	nical Engineeri	ing -Vinica	
	department)					
5.	Cycle (first, second and third	Firs	st cycle			
	cycle)					_
6.	Academic year / semester		ond / fourth		of credits	8
8.	Professor (s)			Simeon Simeon		
9.	Requirements for enrollment th	ie Att	ended course o	of Strength of n	naterial	
	Course					
10.	Purposes of the curriculum (competencies):					
	Students are introduced to the pro	perties	of machine ele	ements, their di	imensioning	g and
	constructing;					
11.	Content of the course program:		6		•	
	Elements for joining. Separable the					
	fasteners, material, calculation; W (rivets, welded connections);	veages,	serrated joints	, pins. insepara	idie rasiene	ers
	Springs, flexible springs, spirally	COTON	prings constr	uation and cala	ulation: Ra	orina
	ball bearing (rolling bearings), sle					aring,
	calculation; Clutches, constantly		•	• /		hac
	automatic clutches. Installation of					
	calculation. Conical gears, constr		•	-		
	transmitters; Friction transmitters			ii, womi and g	car sets, be	103
12.	Learning methods:	,				
-	Lectures, Laboratory exercises, e-	-learnin	g, individual a	nd team projec	ts, consulta	ations.
13.	Total available time		216 hours	1 0		
14.	Distribution of available time		3 + 2 + 2/ per	week		
15.	Forms of teaching / learning	15.1.	lectures / the	eoretical -	3 hours	
	activities		contact teacl	ning,		
			e-teaching			

				15.2	2. theoretical and practical exercises, e-exams, preparation of independent seminar work		2hours	
16.	Other	forms of	f activities	16.1	. Project tasks		1hour	
				16.2	. Individual tasks		1 hour	
				16.3	. Home learning			
17.	Metho	od of asse	essment				L	
	17.1.	Tests /	oral exams			70		
	17.2.	Semina and/or		ect -	presentation: written	10		
	17.3.	Activity	y and participati	ion		20		
18.	Assess	sment Cr	riteria (points /		to 50 points	5(fiv	re)(F)	
	score)				from 51 to 60 points	_ `	(E)	
					from 61 to 70 points		ven) (D)	
					from 71 to 80 points		ght) (C)	
					from 81 to 90 points	,	ne) (B)	
19.	Signat	tura ragu	irement and		from 91 to 100 points 60% of pre-exam activit		en) (A)	nointe
1).	_	g the fin			from 2 midterm exams,			
	Possi	.g			attending of lectures and			
20.	Langu	age of te	eaching / study		Macedonian			
21.	Metho of teac		nitoring the qua	lity	Self-evaluation			
22.	Litera							
		Requir	ed literature					
		No.	Author		Title	Publi	sher	Year
	22.1.	1.	Simeon Simeo	nov	Strength of material (script)	UGD	-Stip	2011
	22.1.	2.	D.Stamboliev		Machine elements ,1,2	UKIN	M Skopje	1975
		3.	K.Trimcevski		Machine elements		anical ty - Skopje	
		Additio	nal literature			•		
		No.	Author		Title	Publi	sher	Year
	22.2.	1.	M. Ognjanovik	ζ.	Mechanical elements	Mech facult Beog		2008
		2.	S.Simeonov		Mechanical elements- collection tasks		-Stip	2011
		3.						

ort, ng -Vinica						
ng -Vinica						
ng -Vinica						
ng - Vinica						
r of 6						
0						
, Ph.D						
, 1 11.12						
o the mechanics						
e laws of fluid						
amic and						
sical properties						
ome elementary						
low; convection						
; laminar flow						
rough slides,						
2						
2						
2						
<i>L</i>						
exercises,						
e-exams, preparation of independent seminar						
hours						
1 hours						
hours						
hours						

17.	Metho	od of assessment				
	17.1.	Tests / oral exams	70 points			
	17.2.	Seminars (paper / project - and/or oral)	presentation: written	10 points		
	17.3.	Activity and participation		20 points		
18.	18. Assessment Criteria (points /		up 50 points	5(five) (F)		
	score)		51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	Signa	ture requirement and	60% of pre-exam activity	ties i.e. 42 points from		
	passir	ng the final exam	two mid-term exams, se			
			attendance of lectures and exercises			
20.	Langu	uage of teaching / study	Macedonian language			
21.	Metho of tea	od of monitoring the quality ching	Self-evaluation			

22.	Literature									
		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	1.	Ass. Prof. Ph.D Radomir Cvetanoski	Fluid Mechanics	UGD	2009				
		2.	Frank White	Fluid Mechanics	Ars Lamina Skopje	2009				
		3.	Ilija Mijakovski	Fluid Mechanics- collection solution tasks	Technical Faculty - Bitola	1994				
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

Anı	Program of the Course	- first cycle studies
1.	Title of the Course	Numerical methods
2.	Code	2FP101512
3.	Study Program	Production Engineering /Transport, Organization and Logistics
4.	Organizer of the study program	University Goce Delcev-Stip
	(unit or institute, Faculty,	Faculty of mechanical engineering -Vinica
	department)	

5.	Cycle (first, second and cycle)	third	First cycle					
6.	Academic year / semeste	er	Seco	ond/Fourth	7.	Number credits	er of	6
8.	Professor (s)		Prof	. Blagoj Golon				
9.	Requirements for enroll	ment	No	<u> </u>		,		
	the Course							
10.	Purposes of the curricul basics of numerical mathe		peten	cies): Stu	ıdent	s are int	roduced to	the
11.	Content of the course pre Approximately solving equation Rafson method. Secant method. Newton interpolation. Numerical differentiation. Trapeze and Simpson's rumethod. Numerical solution Euler method. Higher-ord Method of least squares. Presentation of addicted a CPM-critical path. Learning methods:	quations we nethod. In ation's for , Newton in the Gaussion of ordinate method Fechnique	ith or terpo mula interp ian eli nary c ls. Ru s for	ne unknown. Malation. Polynon back and forth colation. Nume imination, Jako differential equinge-Kuta methotwork planningetwork planninger.	lethomial and are rical cob an artior mod. It is a record and are record are	od of halvinterpolarion dimensions. Taylor Polynom Project, a	ving. New ation. Lagrasional ion. Newto Zajdelov or series maial regressactivity, ev	on IP. methods. sion. vent.
12.	9							
	Lectures, e-learning, indiv	vidual and	team		ultati	ions.		
13.	Lectures, e-learning, indiv		team	156				
13. 14.	Lectures, e-learning, indiv Total available time Distribution of available	e time		156 2+2+1 / per v	veek		12	
13.	Lectures, e-learning, indiv	e time	1. l	156 2+2+1 / per v ectures / theoret contact teaching	veek retica		2	
13. 14.	Lectures, e-learning, indiv Total available time Distribution of available Forms of teaching / learn	e time	1. l c c e e e e e e e e e e e e e e e e e	156 2+2+1 / per v ectures / theorem	week reticang, I pra	al - netical on of	2	
13. 14.	Lectures, e-learning, indiv Total available time Distribution of available Forms of teaching / learn	e time ning 15.	1. l c c c c c c c c c c c c c c c c c c	2+2+1 / per vectures / theoretical and exercises, e-exams, prepared	week reticang, I pra	al - netical on of		
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities	e time ning 15.	1. l c c c c c c c c c c c c c c c c c c	2+2+1 / per vectures / theoretical and exercises, e-exams, prepared to the content of the conten	week retica ng, I pra arati	al - netical on of		
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities	e time ning 15.	1. I constant of the constant	2+2+1 / per vectures / theoretical and exercises, e-exams, prepared pendent so work	week retica ng, I pra arati emin	al - netical on of	2	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities	time 15. 15. 16. 16.	1. I constant of the constant	2+2+1 / per vectures / theoretical and exercises, e-exams, prepared pendent so work Project tasks	week retica ng, I pra arati emin	al - netical on of	2	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities	time 15. 15. 16. 16. 16.	1. I constant of the constant	2+2+1 / per vectures / theoretical and exercises, e-exams, prepared pendent so work Project tasks	week retica ng, I pra arati emin	al - netical on of ar	2	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities Method of assessment	time ning 15. 15. 16. 16.	1. I contain the second	2+2+1 / per vectures / theoretontact teaching cheoretical and exercises, e-exams, prepared pendent so work. Project tasks Individual task	week retica ng, l pra	al - netical on of ar	1	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper	time ning 15. 15. 16. 16. 16. 7 project	1. I contain the second	2+2+1 / per vectures / theoretontact teaching cheoretical and exercises, e-exams, prepared pendent so work. Project tasks Individual task	week retica ng, l pra	al - netical on of ar	2 1 Points	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper and/or oral) 17.3. Activity and part	time ning 15. 15. 16. 16. 16. 16. icipation	1. I constant in the second in	2+2+1 / per vectures / theoretontact teaching cheoretical and exercises, e-exams, prepared pendent so work Project tasks Individual tasl Home learning sentation: write	week retica ng, l pra	70 g 10 g 20 p	2 1 points points oints	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper and/or oral)	time ning 15. 15. 16. 16. 16. 16. icipation	1. 1. c c c c c c c c c	2+2+1 / per vectures / theoretontact teaching cheoretical and exercises, e-exams, prepared pendent so work. Project tasks Individual task	week retica ng, l pra	70 p 10 p 5(fiv	2 1 points points	
13. 14. 15.	Total available time Distribution of available Forms of teaching / learn activities Other forms of activities Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper and/or oral) 17.3. Activity and part Assessment Criteria (poi	time ning 15. 15. 16. 16. 16. 16. icipation	1. 1. 1. 2. 1. 3. I. 1. 1. 1. 1. 1. 1. 1	2+2+1 / per vectures / theoretontact teaching cheoretical and exercises, e-exams, prepared pendent so work Project tasks Individual task Home learning sentation: writes	week retica ng, l pra	70 p 10 p 20 p 5(fiv 6(six	2 2 2 2 2 2 2 2 2 2 3 4 5 6 7 7 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 8	

		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Signature requirement and passing the final exam	60% of pre-examactivities points from 2 midterm examd attending of lectures	ams, project activities
20.	Language of teaching / study	Macedonian	
21.	Method of monitoring the	Self-evaluation	
	quality of teaching		

22.	Literature										
		Requ	ired literature								
		No.	Author	Title	Publisher	Year					
	22.1.	2.	Blagoj Golomeov	Numerical methods in mining and geology	Faculty of Natural and Technical Sciences	2009					
		3.									
		Addit	tional literature								
	22.2.	No.	Author	Title	Publisher	Year					
		1.									

Ann	ex No.3	Program of the Cours	se - first/second/ th	ird	cycle studies	
1.	Title of the	e Course	Measurement and	l me	easuring instrume	nts
2.	Code		2MF102212			
3.	Study Pro	gram:	Production Engine	ering	g /Transport, Organ	ization
			and Logistics			
4.	Organizer	of the study program	University Goce D	elce	v-Stip	
	(unit or in	stitute, Faculty,	Faculty of mechan	ical	engineering -Vinication	a
	departmer	nt)				
5.	Cucle (firs	t, second, third cycle)	First cycle			
6.	Academic	year / semester	Second / fourth	7.	Number of	4
			semester		ECTS credits	
8.	Professor	(s)	Assi. Prof. Bratica	Ten	nelkoska, Ph.D	
9.	Requireme	ents for enrolment the	No			
	Course					
10.	Purposes of	of the curriculum (com	petencies):Students	are i	introduced to the ty	pes of
	measuring	instruments and their ap	plication.			
11.	Content of	f the course program:				
	Basic and g	general terms in metrolog	gy; Measurement an	d me	easurement concept	- •••

	compa and co measu	ed in terms of metrology; In arators; yardsticks for mean ontrol coils; measuring materials; pressure measuring flow; Measuring for one of the control of th	suring chines ement.	angles and cones; Meth ; Measuring instrument Temperature measuren	nods fo s base nent; I	or measurement d on optical nstruments for
12.		ning methods;				
		etical lectures, laboratory	exercis			
13.		available time		120 hours		
14.		bution of the available ti		2+1+1		T _
15.		s of teaching/ Learning	15.1	Lectures - theoretic	al	2
	activi	ties		contact teaching/e-		
			15.2	teaching Theoretical and		1
			13.2	practical exercises, e	_	1
				exams, preparation		
				independent seminar		
				work		
16.	Other	forms of activities	16.1	Projects tasks		
			16.2	Individual tasks	1	
			16.3	.3 Home learning		
17.	Metho	od of assessment	l	I .		l
	17.1.	Tests / oral exams,			oints	
	17.2.	Seminars (paper /proje and /or oral	ect - pi	resentation; written	10 p	oints
	17.3.	Activity and participac	ion		20 p	oints
18.	Asses	sment Criteria (points /		o 50 points	_	ve) (F)
10.	score)	` -		from 51 to 60 points		x) (E)
	ĺ			rom 61 to 70 points	<u> </u>	ven) (D)
			f	rom 71 to 80 points	8(ei	ght) (C)
			f	rom 81 to 90 points	9(nir	ne) (B)
				rom 91 to 100 points		en) (A)
19.	_	ture requirement and		50% of pre-exam activit		
	passir	ng tne final exam		points from 2 midterm e		
20	T a :			and attending of lectures	s and c	discussions
20.	0	uage of teaching/study		Macedonian		
21.		od of monitoring the		Self-evaluation		
	qualit	y of teaching				

22.	Liter	Literature								
	22.1	Required literature								
		Order No.	Author	Title	Publisher	Yea r				
	22.1	1.	Bratica Temelkoska	Measurement and measuring instruments-textbook	University "Goce Delcev"- Stip. Faculty of	2009				

				Mechanical Engineering - Vinica				
	2.			, in the second				
	3.							
	Additional literature							
	Order No.	Author	Title	Publisher	Yea r			
22.2	1.							
	2.							

		<u></u>						
Ann	nex No.3	Program of the Cou	rse - fir	st cycle studie	e S			
1.	Title of t	he Course	He	at transfer				
2.	Code		MF	MF102312				
3.	Study Pr	ogram	Pro	duction Engine	eerin	g /Transı	ort,	
				ganization and			•	
4.	Organize	er of the study progra	m Un	iversity Goce I	Delce	ev		
	(unit or institute, Faculty,			culty of Mecha	nical	Enginee	ring	
	departm			-			_	
5.	Cycle (fi	rst, second and third	hird first cycle					
	cycle)							
6.	Academi	c year / semester	II/I	V semester	7.	Numbe	er of	4
						credits		
8.	Professo	. ,	Ass	si. Prof. Radon	nir C	vetanosk	i, Ph.D	
9.	_	ments for enrollment	No					
	the Cour							
10.	and temp	s of the curriculum (coerature, the basic types, heat transfer devices,	of heat	transfer, condu	iction	n, convec	tion and	
11.	Content of the course program: 1.Temperature and heat; Transmission of heat; conduction heat transfer; Convective heat transfer; Radiation heat transfer; Heat; 2. Efficiency of heat exchangers; Classification of heat exchangers; Tubular heat exchangers; Plate heat echangers; Regenerativeheat exchangers; Designing heat exchangers;							
	Learning methods: Lectures with presentations through slides, exercises, independent elaboration and defense of the project task							
12.	Lectures	g methods: with presentations thro	ough slid	es, exercises, in	ndep	endent el	aboration	and
12. 13.	Lectures defense of	g methods: with presentations thro	ough slid	es, exercises, in	ndep	endent el	aboration	and
	Lectures defense of	g methods: with presentations thro of the project task	ough slid				aboration	and
13.	Lectures defense of Total ava	g methods: with presentations thro of the project task ailable time	ough slid	120 hours	er we	ek	aboration	and

				e-teaching		
			15.2.	theoretical and prac	tical	1
				exercises,		
				e-exams, preparation		
				independent semina	r	
1.0	041	· · · · · · · · · · · · · · · · · · ·	16.1.	work		1
16.	Otner	Other forms of activities 1		Project tasks		hours
	16.		16.2.	Individual tasks		1 hours
			16.3.	Home learning		hours
17.	Metho	od of assessment				
	17.1. Tests / oral exams					oints
	17.2.	Seminars (paper / pro	ject - p	presentation: written 10 pe		oints
		and/or oral)				
	17.3.	Activity and participat	ion		20 pc	oints
18.	Assess	sment Criteria (points /	ı	up 50 points	5(fiv	e) (F)
	score)		4	51 to 60 points	6(six	(E)
			_ (61 to 70 points	7 (se	ven) (D)
				71 to 80 points		ght) (C)
				81 to 90 points		ne) (B)
				91 to 100 points		en) (A)
19.	_	ture requirement and		60% of pre-exam activit		-
	passir	ng the final exam		two mid-term exams, so		* * ·
				attendance of lectures ar	nd exe	ercises
20.		uage of teaching / study		Macedonian language		
21.		od of monitoring the qua	ality S	Self-evaluation		
	of tea	ching				

22.	Litera	Literature										
		Requ	ired literature									
		No.	Author	Title	Publisher	Year						
	22.1.	1.	A. Mojsovski	Heat transfer and mass	UKIM	1992						
		2.										
		3.										
		Additional literature										
		No.	Author	Title	Publisher	Year						
	22.2.	1.	Schlunder E. U	Heat Exchanger Design Handbook	Hamisphere Publishing Corporation, Washington, USA	1987						
		2.	John H. Lienhard	A heat transfer textbook	Philogiston press	2011						
		3.										

Ann	nex No.3	Program of the Coun	rse - fi	rst cycle studie	s				
1.	Title of t	he Course	T	hermo-technica	al ma	achines			
2.	Code			2MF100912					
3.	Study Pr	ogram	Pr	Production engineering					
4.		er of the study progra		University Goce Delcev-Stip					
	(unit or i	nstitute, Faculty,		culty of Mecha		-	ering -Vini	ca	
5.	departme Cycle (fin	rst, second and third	fiı	rst cycle					
6.		c year / semester	3/	V	7.	Number credits		8	
8.	Professo	r (s)	A	ssistant Prof. Zl	atko	Sovresk	i, PhD	•	
9.	Requirer Course	nents for enrollment t	the no	one					
10.	Purposes of the curriculum (competencies): Introduction to basic thermo technical machines, steam boilers, thermal turbines, steam turbines, heating appliances and air conditioning, cooling units, engine SVS.								
12.	1. Types of energy; Energy sources; Steam boilers; Heat balance and heat losses; Coefficient of efficiency; Construction of steam boilers; Thermal turbines and plants. 2.Basic elements and classification of steam turbine units; Heating and cooling; ventilation plants; Refrigerating plants; Motor SVS; engine cycle in SVS. Learning methods: Lectures with presentations through slides, exercises, independent preparation and presentation of the project assignment								
13.	Total ava	ailable time		216					
14.	Distribut	tion of available time		3+2+2 / per	wee	k			
15.	Forms of activities	teaching / learning	15.1.	lectures / theo contact teach e-teaching		cal -	3		
			15.2.	theoretical ar practical exer e-exams, prej independent work	rcise para	tion of	2		
16.	Other for	rms of activities	16.1.	Project tasks			1 hours		
			16.2.	Individual ta	sks		1 hours		
			16.3.	Home learning	ıg		hours		
17.	Method	of assessment		•			•		
	17.1. To	ests / oral exams				70 p	oints		
		eminars (paper / proj nd/or oral)	ect - pı	esentation: wr	itten		oints		

	17.3.	Activity and participation		20 points	
18.	Assess	sment Criteria (points /	up 50 points	5(five) (F)	
	score)	1	51 to 60 points	6(six) (E)	
			61 to 70 points	7 (seven) (D)	
			71 to 80 points	8 (eight) (C)	
			81 to 90 points	9 (nine) (B)	
			91 to 100 points	10 (ten) (A)	
19.	Signa	ture requirement and	60% of pre-examactivity	ties or 42 points from	
	passir	ng the final exam	the two mid-term exams, seminar papers,		
			attendance of lectures a	and exercises	
20.	Langu	uage of teaching / study	Macedonian		
21.	Metho	od of monitoring the quality Self-evaluation			
	of tea	ching			

22.	Litera	ture								
		Required literature								
	22.1.	No.	Author	Title	Publisher	Year				
		1.	Armenski Slave	Termodinamicki masini I uredi	UKIM	1995				
		2.								
		3.								
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.	Petrovski Ilija	Parni kotli	UKIM	2004				
	22,2,	2.	Dimitrovski Mile	Motori SVS-teorija I sovremena oprema	UKIM	2001				
		3.								

Ann	nex No.3 Program of the Course	- first cycle studies	3		
1.	Title of the Course	Processing using cutting and plastic deformation			
2.	Code	2MF101012			
3.	Study Program	Production Engine	eerin	ıg	
4.	Organizer of the study program	University Goce I	Delce	ev-Stip	
	(unit or institute, Faculty,	Faculty of Mechan	nical	Engineering - Vi	inica
	department)	Department of Pro	oduc	tion Engineering	
5.	Cycle (first, second and third cycle)	First cycle			
6.	Academic year / semester	Third year/ Fifth semester	7.	Number of credits	8
8.	Professor (s)	Assi. Prof. Slavco Cvetkov, Ph.D.			
9.	Requirements for enrollment the Course	None			
10.	Purposes of the curriculum (comp	oetencies):			

	TD ' ' 1 '	1 '	1' ' 1 '	1.1	1	
	Training and running processes deformation and processing tech					
11.	Content of the course program		stor waring apartial property			
110	1. Processing using grinding:		of the theory of process	ing 115	ing cutting. The	
	quality of processing and econo		• •	_	0	
	operations, the basic elements o			_	U 1	
	cutting, speed cutting, sweep, th					
	Processing by milling, Saw logs					
	gears.	s, umm	ing, insertion, planning,	grinan	ng. I reparation of	
	2. Processing using plastic deformation : Elementary theoretical basis. Technology					
	of processing metal sheets using			cai ba	sis. Technology	
12.	Learning methods:					
12.	Lectures, exercises, individual works, practical classes, home learning, consultations.					
	Lectures, exercises, marviduar v	works,	practical classes, nome	icariiii	ig, consultations.	
12			21 < 1			
13.	Total available time		216 hours			
14.	Distribution of available time	1 = 1	3+2+2 / per week		2.1	
15.	Forms of teaching / learning	15.1.		-	3 hours	
	activities		contact teaching,			
		150	e-teaching		2.1	
		15.2.	_	tical	2 hours	
			exercises,	•		
			e-exams, preparation			
			independent seminar	r		
1.0		4.4	work		11	
16.	Other forms of activities	16.1.	ŭ		1hours	
		16.2.	2. Individual tasks			
		16.3.	3. Home learning		1 hours	
17.	Method of assessment			1		
	17.1. Tests / oral exams			70 p	oints	
	17.2. Seminars (paper / proj	ject - p	presentation: written	10 p	oints	
	and/or oral)					
	17.3. Activity and participat	ion		20 pc	oints	
18.	Assessment Criteria (points /		up 50 points	5(fiv	e) (F)	
	score)		51 to 60 points	6(six	(E)	
			61 to 70 points	7 (se	ven) (D)	
			71 to 80 points	8 (ei	ght) (C)	
			81 to 90 points	9 (ni	ne) (B)	
			91 to 100 points	10 (t	en) (A)	
19.	Signature requirement and		60% of pre-exam activit			
	passing the final exam		points from 2 midterm e			
			and attending of lectures		1 0	
20.	Language of teaching / study		Macedonian			
21.	Method of monitoring the qua	ality	Self-evaluation			
	of teaching					

22. L	Literat	ure							
		Requ	ired literature						
		No. Author		Title	Publisher	Year			
2	22.1.	1.	Slavco Cvetkov	Processing using cutting and plastic deformation-script	UGD-Stip Mechanical faculty-	2013			
		2.			Vinica				
		Additional literature							
		No.	Author	Title	Publisher	Year			
		1.	Milisav Kalajdzić	Technology of machine construction	Mechanical faculty, Belgrade	2006			
2	22.2.	2.	Joko Stanić	Processing theory of processes	Mechanical faculty, Belgrade	1994			
		3.	J. Lazarev, V. Strezov	Machines and processing using deformation	Mechanical faculty, Skopje	2001			
		4	D. M. Nikolić	Theory of processing II Theory of processing metals using deformation	Mechanical faculty, Belgrade	1999			
		5	D. M. Nikoliċ	Theory of processing II Theory of processing metals using deformation	Mechanical faculty, Belgrade	1999			

Ann	ex No.3	Program of the Course	e - first cycle stud	ies		
1.	Title of the	e Course	CAD technology			
2.	Code		2MF101112			
3.	Study Prog	gram	Production Engine	eerin	ıg	
4.	Organizer	of the study program	University "Goce	Delo	cev"- Stip.	
		stitute, Faculty,	Faculty of Mecha	nical	Engineering -Vinica	
	departmen	nt)				
5.	Cycle (first	t, second and third	First cycle			
	cycle)					
6.	Academic	year / semester	third / fifth	7.	Number of credits	6
8.	Professor ((s)	Assi. Prof. Simeon Simeonov, Ph.D			
9.	Requireme	ents for enrollment the	No			
	Course					
10.	Purposes o	of the curriculum (comp	etencies):			
	Students ar	e introduced to the basics	and application of	CA	D technology in mech	anical
	engineering					
11.		the course program:				
		n to CAD technology, 2D				
	Primitives of	obtained by extruding, Pr	imitives obtained b	y rot	tation, Primitives obta	ined by

	translation along the path, Modeling ribs, Sketched primitives modeling, Creating assemblies of primitives.					Sketched primitives r			
12.		ing metho							
		0		e-lear	ning	, individual and team	projec	ts, consulta	tions.
13.		available				156 hours			
14.			available time	1		2 +2 +1/ per week		1	
15.			ing / learning	15.1		lectures / theoretical	l -	2 hours	
	activit	ies				contact teaching,			
				15.2		e-teaching	tical	2hours	
				13.2		theoretical and prace exercises,	ucai	ZHOUIS	
						e-exams, preparation	n of		
						independent semina			
						work			
16.	Other	forms of	activities	16.1		Project tasks			
				16.2		Individual tasks		1 hour	
				16.3	3.	Home learning			
17.									
	17.1.		oral exams				70		
	17.2.	Seminar and/or o		ect -]	pres	sentation: written	10		
	17.3.	Activity	and participati	ion			20		
18.	Assess	ment Cri	teria (points /		to 3	50 points	5(fiv	re)(F)	
	score)					m 51 to 60 points		(E)	
					from 61 to 70 points		7 (seven) (D)		
					from 71 to 80 points		8 (eight) (C)		
						m 81 to 90 points m 91 to 100 points		ne) (B) en) (A)	
19.	Signat	nire regui	irement and) noints
1).	_	g the fina				60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and			
	1	g : ,				attending of lectures and discussions			
20.	Langu	age of tea	aching / study		Ma	Macedonian			
21.	Metho of teac		itoring the qual	lity	Sel	f-evaluation			
22.	Litera								
			d literature						
		No.	Author	Γ	Title		Publis	her	Year
	22.1.	1.				lWorks –software			
		2		P	And	a book			
		2.							
		3.							
	22.2.		nal literature			·			
	<i></i> .	No.	Author	Γ	Title		Publis	her	Year

	1.	G. Devedzik	CAD/CAM technology	Mechanical	2004
				faculty	
				Kraguevac	
	2.				
	3.				

Annex No.3 Program of the Course					- first cycle studies				
1.	Title of	the Cou	rse	Su	Sustainable energy systems				
2.	Code				/IF102412				
3.	Study P	rogram		Pr	oduction Engir	neerin	g		
4.	•	Organizer of the study program			niversity Goce				
	(unit or institute, Faculty, department)		Fa	culty of mecha	nical	enginee	ring -Vi	nica	
5.	Cycle (fi	Cycle (first, second and third cycle)			st cycle				
6.	Academic year / semester		III	/V semester	7.	Numb credits		4	
8.	Professo	Professor (s)			si. Prof. Radoi	mir C	vetanosk	ci, Ph.D	
9.	_	Requirements for enrollment the Course							
10.	Purposes of the curriculum (competencies): Introduction to sustainable energy								
	systems, solar energy, geothermal energy, biomass, wind energy.								
11.			ourse program				G 1		
11.	1.Intr featu appli 2.Ap obtai	roduction res; Devication of plication ning fue	n; Classificatio ices and applic f solar energy f of geothermal l from biomass	n of sus ation of or elect energy ; device	solar energy fricity; General; Energy from s for obtaining	or hot geoth bioma	t water; l termal en tass - pote	Devices nergy; ential so	and ources;
11. 12.	1.Intr featu appli 2.Ap obtai	roduction res; Devication of plication ning fue gy; wind	n; Classificatio ices and applic f solar energy f of geothermal l from biomass turbines and th	n of sus ation of or elect energy ; device	solar energy fricity; General; Energy from s for obtaining	or hot geoth bioma	t water; l termal en tass - pote	Devices nergy; ential so	and ources;
	1.Intr featu appli 2.Ap obtai energ Learnin	res; Dev cation o plication ning fue gy; wind g metho	n; Classificatio ices and applic f solar energy f of geothermal l from biomass turbines and th	n of sus ation of or elect energy ; device heir app	solar energy fricity; General; Energy from s for obtaining lication	or hot geoth bioma g fuel	water; l nermal en ass - pote from bio	Devices nergy; ential so omass; v	and ources; vind
	1.Intr featu appli 2.Ap obtai energ Learnin	res; Dev cation o plication ning fue gy; wind g metho with pre	n; Classificatio ices and applic f solar energy f of geothermal from biomass turbines and the ds: esentations through the discount of the dis	n of sus ation of or elect energy ; device heir app	solar energy fricity; General; Energy from s for obtaining lication	or hot geoth bioma g fuel	water; l nermal en ass - pote from bio	Devices nergy; ential so omass; v	and ources; vind
12.	1.Intr feature appli 2.Ap obtaineners Learnin Lectures defense of	res; Deverage cation of plication of plication of plication of plication of the present of the p	n; Classificatio ices and applic f solar energy f of geothermal from biomass turbines and the ds: esentations through the discount of the dis	n of sus ation of or elect energy ; device heir app	solar energy fricity; General; Energy from s for obtaining lication	or hot geoth bioma g fuel	water; l nermal en ass - poto from bio	Devices nergy; ential so omass; v	and ources; vind
12. 13.	1.Intr feature appli 2.Ap obtaineners Learnin Lectures defense of Total av Distribut	res; Deverage cation of a restance of the process of teaching restance of teaching restance of the process of teaching restance of teac	n; Classificationices and applications and applications of geothermal and the discrete from biomass and the discrete from the discrete fro	n of sus ation of or elect energy ; device heir app	solar energy fricity; General; Energy from es for obtaining lication les, exercises, 1 120 hours 2+1+1 / per lectures / the	r weel	water; larmal en ass - pote from bio	Devices nergy; ential so omass; v	and ources; vind
12. 13. 14.	1.Intr featu appli 2.Ap obtai energ Learnin Lectures defense of	res; Deverage cation of a restance of the process of teaching restance of teaching restance of the process of teaching restance of teac	n; Classificatio ices and applic f solar energy f of geothermal l from biomass turbines and th ds: esentations thro oject task	n of sus ation of or elect energy device heir app	solar energy fricity; General; Energy from s for obtaining lication les, exercises, 120 hours 2+1+1 / per lectures / the contact teach	r weel	water; larmal en ass - pote from bio	Devices nergy; ential so omass; v	and ources; vind
12. 13. 14.	1.Intr feature appli 2.Ap obtaineners Learnin Lectures defense of Total av Distribut	res; Deverage cation of a restance of the process of teaching restance of teaching restance of the process of teaching restance of teac	n; Classificatio ices and applic f solar energy f of geothermal l from biomass turbines and th ds: esentations thro oject task	n of sus ation of or elect energy ; device heir appl	solar energy fricity; General; Energy from so for obtaining lication 120 hours 2+1+1 / per lectures / the contact teach e-teaching	r weel	e water; la ermal er ass - pote from bio endent e	Devices nergy; ential somass; value laborati	and ources; vind
12. 13. 14.	1.Intr feature appli 2.Ap obtaineners Learnin Lectures defense of Total av Distribut	res; Deverage cation of a restance of the process of teaching restance of teaching restance of the process of teaching restance of teac	n; Classificatio ices and applic f solar energy f of geothermal l from biomass turbines and th ds: esentations thro oject task	n of sus ation of or elect energy device heir app	solar energy fricity; General; Energy from s for obtaining lication les, exercises, 120 hours 2+1+1 / per lectures / the contact teach	r weel	e water; la ermal er ass - pote from bio endent e	Devices nergy; ential so omass; v	and ources; vind

16.	Other	forms of activities	16.1.	Project tasks		hours
			16.2.	Individual tasks		1 hours
			16.3.	Home learning		hours
17.	Meth	od of assessment	ı			
	17.1.	Tests / oral exams			70 p	ooints
	17.2.	Seminars (paper / pro and/or oral)	ject - p	resentation: written	10 p	ooints
	17.3.	Activity and participat	ion		20 pc	oints
18.	Asses	sment Criteria (points /	I	up 50 points	5(five) (F)	
	score)	4	51 to 60 points	6(six	(E)
				61 to 70 points	7 (se	even) (D)
			7	71 to 80 points	8 (ei	ght) (C)
			8	81 to 90 points	9 (ni	ne) (B)
				91 to 100 points		en) (A)
19.	Signa	ture requirement and	(60% of pre-exam activit	ies i.e	e. 42 points from
	passii	ng the final exam		two mid-term exams, se		
			á	attendance of lectures ar	nd exe	ercises
20.	Langu	uage of teaching / study]]	Macedonian language		
21.	Metho of tea	od of monitoring the qua	ality	Self-evaluation		

22.	Litera	ture								
		Required literature								
	22.1.	No.	Author	Title	Publisher	Year				
		1.	S. Armenski	Renewable energy sources	NIP Student comes Skopje	2007				
		2.								
		3.								
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.	G. Kanevce	Sustainable energy systems lectures	Bitola					
		2.	A.M.Laughton	Renewable Energy Sources	Taylor&Fran cis, London	2003				
		3.								

Ann	Annex No.3 Program of the Course - first cycle studies		
1.	Title of the	Course	Machinery for transport
2.			2MF109512
3.	Study Prog	gram	Production Engineering

Copies Faculty of Mechanical Engineering - Vinica	4.	Organizer of the study progra	m U	niversity "Goce Delcev"- Stip.				
department Cycle (first, second and third cycle)	'		l l	<u> </u>				
Cycle Cycle Course Cycle Cyc								
6. Academic year / semester 8. Professor (s) 9. Requirements for enrollment the Course 10. Purposes of the curriculum (competencies): Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brasses, elements for raising, clutches, safety devices, Elements for rothiou, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Learning methods: Lectrues, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1 theoretical and practical contact teaching, e-teaching 16.2 Individual tasks 1 hour 16.2. Individual and team projects 16.3. Individual and team projects 16.4. Individual and team projects 16.5. Individual an	5.		Fi	irst cycle				
8. Professor (s) Assi. Prof. Simeon Simeonov, Ph.D Requirements for enrollment the Course Requirements for enrollment the Course Purposes of the curriculum (competencies): Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work; simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyors belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time		• 7		. 1 (0.01		0 11 4		
9. Requirements for enrollment the Course 10. Purposes of the curriculum (competencies): Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: Conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time								
10. Purposes of the curriculum (competencies): Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods:		\ \ /			nov, P	h.D		
10. Purposes of the curriculum (competencies): Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load; Desc, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time	9.		the N	0				
Students are introduced to the types of means of trasportation, calculation and application. 11. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: Does, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time	10		4 -					
application.	10.				ماميياه	tion and		
1. Content of the course program: Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors with traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods:		_	pes of	means of trasportation, c	aicuia	tion and		
Introduction; Machinery for transport with cyclic work: simple mechanisms, cranes and hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains wheels, rope drums. Elements for rotention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time	11		1 •					
hoists; Cranes' features: capacity, relative time of work; types of loads. Mechanisms of cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, serew conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 14. Distribution of available time 15. Porms of teaching / learning activities 15. lectures / theoretical - 2 hours contact teaching, e-teaching 15. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assesment Criteria (points / to 50 points) 5 (five)(F)	11.	. 0						
cranes; Resistances and power of cranes; Elements for carrying the load: ropes, chains, chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyors belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15. lectures / theoretical - contact teaching, e-teaching 15. lectures / theoretical and practical exercises, e-exams, preparation of independent seminar work work 16. Other forms of activities 16. lectures / theoretical and practical exercises, e-exams, preparation of independent seminar work 16. lectures / theoretical and practical exercises, e-exams, preparation of independent seminar work 16. lectures / theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Seminars of activities 16. Droject tasks 16. Individual tasks 1 hour 17. Tests / oral exams 17. Seminars (paper / project - presentation: written and/or oral) 17. Activity and participation 18. Assessment Criteria (points / to 50 points 5 (five)(F)								
Chain wheels, rope drums. Elements for holding the load; Brakes, elements for raising, clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, Machines without traction components: roller conveyors, oscillatory conveyors, serew conveyors, hydraulic and pneumatic conveyors. 12. Learning methods:								
clutches, safety devices, Elements for retention, lifts, skippers; Transportation vehicles: carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1. lectures / theoretical contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning 17. Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assesment Criteria (points / to 50 points 50 f(five)(F)				• •				
carts, tractors, forklifts; Machines for continuous transport, conveyors with traction components: Conveyor with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15. 1. lectures / theoretical contact teaching, e-teaching 15. 2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16. 1. Project tasks 16. 2. Individual tasks 1 hour 16. Method of assessment 17. 1. Tests / oral exams 17. 2. Seminars (paper / project - presentation: written and/or oral) 17. 3. Activity and participation 18. Assessment Criteria (points / to 50 points 5 (five)(F)								
components: Conveyor belts; Conveyors with: plates, harrow. Elevators; Machines without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 120 hours 14. Distribution of available time 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5 conveyors, screw conveyors, scillatory conveyors, screw conveyors, scillatory conveyors, screw conveyors, screw conveyors, scillatory conveyors, screw conveyors, scillatory conveyors,								
without traction components: roller conveyors, oscillatory conveyors, screw conveyors, hydraulic and pneumatic conveyors. 12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 120 hours 2+1+1/per week 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)				*	•			
12. Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 120 hours 14. Distribution of available time 2 + 1 + 1/ per week 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 70 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 20 18. Assessment Criteria (points / to 50 points 5(five)(F)								
Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. 13. Total available time 120 hours		hydraulic and pneumatic convey	ors.		·	·		
13. Total available time 120 hours 14. Distribution of available time 2 +1 +1/ per week 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 2 hours 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 1hours 16. Other forms of activities 16.1. Project tasks 1 hour 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 70 17.2. Seminars (paper / project - presentation: written and/or oral) 10 17.3. Activity and participation 20 18. Assessment Criteria (points / to 50 points 5(five)(F)	12.	Learning methods:						
14. Distribution of available time 2 + 1 + 1/ per week 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 2 hours 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 1hours 16. Other forms of activities 16.1. Project tasks 1 hour 16.2. Individual tasks 1 hour 17.1. Tests / oral exams 70 17.2. Seminars (paper / project - presentation: written and/or oral) 10 17.3. Activity and participation 20 18. Assessment Criteria (points / to 50 points 5(five)(F)		Lectures, Laboratory exercises,	e-learni	ing, individual and team	projec	ts, consultations.		
15. Forms of teaching / learning activities	13.			120 hours				
15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work			_					
15.2. theoretical and practical 1hours	15.		15.1.			2 hours		
15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work		activities		٥,				
16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning				e-teaching				
16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning								
16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning								
16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning			15.2	2 theoretical and practical Thours				
Color Colo			13.2.	_	iicai	mours		
Independent seminar				,	ı of			
16. Other forms of activities 16.1. Project tasks 16.2. Individual tasks 1 hour 16.3. Home learning				,				
16.2. Individual tasks 1 hour				_				
17. Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)	16.	Other forms of activities	16.1.	Project tasks				
17. Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)			16.2.	Individual tasks		1 hour		
17. Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)			16.3.	Home learning				
17.1. Tests / oral exams 17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)	1							
17.2. Seminars (paper / project - presentation: written and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)	1-	3.5 (1 1 0						
and/or oral) 17.3. Activity and participation 18. Assessment Criteria (points / to 50 points 5(five)(F)	17.				70			
17.3. Activity and participation 20 18. Assessment Criteria (points / to 50 points 5(five)(F)	17.	17.1. Tests / oral exams						
	17.	17.1. Tests / oral exams 17.2. Seminars (paper / pro	ject - p	resentation: written				
	17.	17.1. Tests / oral exams 17.2. Seminars (paper / progand/or oral)		resentation: written	10			
score) from 51 to 60 points 6(six) (E)		 17.1. Tests / oral exams 17.2. Seminars (paper / propand/or oral) 17.3. Activity and participat 	ion		10 20	e)(F)		

				from 61 to 70 points	7 (seven) (D)		
				from 71 to 80 points	8 (eight) (C)		
				from 81 to 90 points	-		
				from 91 to 100 points			
19.	Signat	ure reau	irement and	60% of pre-exam activ	vities or minimum 42	points	
		g the fina		from 2 midterm exam		-	
	1	8		attending of lectures a			
20.	Langu	age of te	aching / study	Macedonian			
21.	Metho	d of mon	itoring the quality	Self-evaluation			
	of teac		G				
22.	Litera	ture					
	Required literature						
		No.	Author	Title Publisher		Year	
	22.1.	1.	S.Simeonov	Machinery for transport (script)	UGD -Stip	2011	
		2.	J.Jancevski	Transporting appliances	Mechanical faculty Skopje	2003	
		3.		11	7 13		
		Additio	nal literature				
		No.	Author	Title	Publisher	Year	
		1.	Sava Dedier	Transporting	Mechanical faculty	1971	
	22.2.			appliances	-Beograd		
		2.	Sotir Panovski	Transfered processes	Technical faculty - Bitola	2009	
		3.					

Anı	nex No.3	Program of the Course	e - first cycle stud	ies			
1.	Title of th	e Course	Engineering eco	nom	ics		
2.	Code		2MF107012				
3.	Study Pro	gram	Production Engine and Logistics	eeri	ng /Transport, Organi	zation	
4.		of the study program stitute, Faculty, nt)	University Goce Faculty of mecha		ev-Stip l engineering -Vinica		
5.	Cycle (firs	t, second and third	First cycle				
6.	Academic	year / semester	Third/sixth 7. Number of ECTS 4 credits				
8.	Professor	(s)	Assi. Prof. Misko Dzidrov, Ph.D				

9.	Requirements for enrollment to Course	he No)				
10.	Purposes of the curriculum (competencies): Learning in the field of engineering economic, the methods and analysis, as well as making investment decisions among project alternatives. Strengthening analytical skills related to financial information.						
11.	Contents of the course program: 1. Introduction to the economic methods applied in engineering						
	2. Decision-making method	.S					
	3. Studying of cash flow con	ncepts					
	4. Rate of return, return of i	nvestm	ents,				
	5. Financial indicators for p	rofitabi	lity, effectiveness, efficiency,				
	6. Cost analysis, revenue, pr	rofits,					
	7. Balance sheet and income	e staten	nent				
	8. Studying of basic econon incremental analysis, cos		e analysis (present value, ann ït analysis)	ual analysis,			
	9. Methods for calculating of depreciation						
	10. Techniques for estimating	g of equ	ipment replacement				
	11. Making investment decis	ions am	nong project alternatives				
	12. Learning techniques for p	oreparat	ion of a business plan and fea	sibility study			
12.	Learning methods: Interactive t projects, consultations and individual			team work on			
13.	Total available time		120 hours				
14.	Distribution of available time		2 +1 +1				
15.	Forms of teaching / learning activities	15.1.	lectures / theoretical - contact teaching, e-teaching	2			
	15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work						
16.	Other forms of activities	16.1.	Project tasks				
		16.2.	Individual tasks	1			
		16.3.	Home learning				
17.	Method of assessment						

	17.1.	Tests / oral exams		70	
	17.2.	Seminars (paper / project - and/or oral)	presentation: written	10	
	17.3.	Activity and participation		20	
18.	Assess	sment Criteria (points /	to 50 points	5(five)(F)	
	score)	_	from 51 to 60 points	6(six) (E)	
			from 61 to 70 points	7 (seven) (D)	
			from 71 to 80 points	8 (eight) (C)	
			from 81 to 90 points	9 (nine) (B)	
			from 91 to 100 points	10 (ten) (A)	
19.	Signa	ture requirement and	60% of pre-exam activities or minimum 42 points		
	passir	ng the final exam	from 2 midterm exams,	project activities and	
			attending of lectures and	discussions	
20.	Language of teaching / study Macedonian				
21.		od of monitoring the quality	Self-evaluation		
	of tea	ciing			

22.	Litera	erature										
		Require	Required literature									
				Title	Publisher	Year						
	22.1.			Engineering Economics	Faculty of Mechanical Engineering, UKIM, Skopje							
		2.	D. Bojadzhioski	Enterprise Economics	Economic Faculty Skopje	1999						
		3.	nal litaratura									
		Additional literature										
		Order No.	Author	Title	Publisher	Year						
	22.2.	1.	Michael R. Baye	Managerial Economics & Business Strategy	McGraw-Hill College	2007						
		2.										
		3.										

Anr	Annex No.3 Program of the Course - first cycle studies				
1.	Title of t	he Course	Machines and tools for plastic processing		
2.	Code		2MF101212		
3.	Study Pr	ogram	Production Engineering		
4.	Organize	er of the study program	University Goce Delcev-Stip		
	(unit or institute, Faculty,		Faculty of Mechanical Engineering - Vinica		
	departm	ent)	Department of Production Engineering		

5.	Cycle cycle)	(first, second and third	Fi	First cycle				
6.		emic year / semester		Third / Sixth semester 7. Number of credits				
8.	Profes	ssor (s)		Assi. Prof. Slavco Cvetkov, Ph.D				
9.		rements for enrollment		ssed exam of Pi				and
	the Co			astic deformatio				
10.		ses of the curriculum (c						
		ng to usetreatment proces						ines as
11.		s design and construction		for plastic defo	rmati	on proc	essing.	
	Content of the course program: 1. Machines for plastic processing. Machines for sheet metal processing, crank and hydraulic presses. Angle bending presses and crank scissors for cutting sheet metal. Hammers and forging presses. 2. Tools for plastic processing. Basic elements, components and materials for construction. Constructing tools for sheet metal piercing, punching, bending and drawing. Forging tools for hammers and forging presses.							
12.		ing methods: es, exercises, individual v	vork, pr	actical classes, l	home	learning	g, consult	ations.
13.	Total	available time		216 hours				
14.		bution of available time		3+2+2 / per	week	ζ		
15.	Forms activit	s of teaching / learning ties	15.1.	lectures / theo contact teachi e-teaching		al -	3 hours	
			15.2.	theoretical an exercises, e-exams, prep	_	on of	2 hours	
				independent s		ar		
16.	Other	forms of activities	16.1.	independent s work Project tasks	semin	ar	1 hours	
16.	Other	forms of activities	16.1. 16.2.	independent s work	semin	ar 	1 hours	
16.	Other	forms of activities		independent s work Project tasks	semin sks	ar 		
16. 17.		forms of activities od of assessment	16.2.	independent s work Project tasks Individual tas	semin sks		1 hours	
			16.2.	independent s work Project tasks Individual tas	semin sks			
	Metho	od of assessment	16.2. 16.3.	independent s work Project tasks Individual tas Home learnin	sks g	70 p	1 hours	
	Metho 17.1.	od of assessment Tests / oral exams Seminars (paper / proj	16.2. 16.3.	independent s work Project tasks Individual tas Home learnin	sks g	70 p	1 hours	
17.	Metho 17.1. 17.2.	od of assessment Tests / oral exams Seminars (paper / proj and/or oral)	16.2. 16.3. lect - pr	independent s work Project tasks Individual tas Home learnin	sks g	70 p 10 p	1 hours	
17.	Metho 17.1. 17.2.	od of assessment Tests / oral exams Seminars (paper / projand/or oral) Activity and participatesment Criteria (points /	16.2. 16.3. ject - pr	independent s work Project tasks Individual tas Home learnin	sks g	70 p 10 p	1 hours oints oints oints e) (F)	
17.	Metho 17.1. 17.2. 17.3. Assess	od of assessment Tests / oral exams Seminars (paper / projand/or oral) Activity and participatesment Criteria (points /	16.2. 16.3. ject - pr	independent s work Project tasks Individual tas Home learnin resentation: wr	sks g	70 p 10 p 20 pc 5(fiv 6(six	1 hours oints oints oints e) (F)	
17.	Metho 17.1. 17.2. 17.3. Assess	od of assessment Tests / oral exams Seminars (paper / projand/or oral) Activity and participatesment Criteria (points /	16.2. 16.3. iect - pr	independent s work Project tasks Individual tas Home learnin resentation: wr p 50 points 1 to 60 points 1 to 70 points 1 to 80 points	sks g	70 p 10 p 20 po 5(fiv 6(six 7 (se 8 (eig	1 hours oints oints e) (F)) (E) ven) (D) ght) (C)	
	Metho 17.1. 17.2. 17.3. Assess	od of assessment Tests / oral exams Seminars (paper / projand/or oral) Activity and participatesment Criteria (points /	16.2. 16.3. ject - pri	resentation: wr	sks g	70 p 10 p 20 pc 5(fiv 6(six 7 (se 8 (eig 9 (ni	1 hours oints oints e) (F) (E) ven) (D)	

19.	Signature requirement and passing the final exam	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities
		and attending to lectures and discussions
20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality	Self-evaluation
	of teaching	

22.	Litera	ture									
		Required literature									
		No.	Author	Title	Publisher	Year					
	22.1.	1.	Slavco Cvetkov	Machines and tools for plastic processing - script	UGD-Stip Mechanical faculty- Vinica	2013					
		2.									
		3.									
		Additional literature									
		No.	Author	Title	Publisher	Year					
		1.	J, Lazarev V, Strezov.	Machines and processing with deformation	Mechanical faculty, Skopje	1994					
	22.2.	2.	M. Jovičić, Lj. Tanović	Tools and equipment - Design and construction tools for	Mechanical faculty, Belgrade	2007					
				making metal sheet parts							
		3.	B. Musafija	Metal processing using plastic deformation	Svjetlost Sarajevo	2001					

Anı	nex No.3	Program of the Course	e - first cycle studi	es			
1.	Title of th	e Course	Basics of interna	al co	mbustion engines		
2.	Code		2MF109112				
3.	Study Pro	gram	Production Engin	neeri	ng		
4.	Organizer	of the study program	University "Goce	e Del	cev"- Stip,		
	(unit or in	stitute, Faculty,	Faculty of Mechanical Engineering -Vinica				
	departmen	nt)					
5.	Cycle (firs	st, second and third	First cycle				
	cycle)						
6.	Academic	year / semester	third / fifth	7.	Number of ECTS	5	
					credits		
8.	Professor (s) Assi. Prof. Zlatko V. Sovreski, Ph.D						

9.	Requirements for enrollment Course	the N	O				
10.	Content of the course program: Introduction to basic Thermotechnical machines - steam boilers, thermal turbines, steam turbines, devices heating and air conditioning, refrigeration plants, internal combustionengines						
11. 12. 13. 14.	 Contents of the course program: Types of energy; energy sources; steam boilers; Heat balance and heat losses; Useful coefficient; construction of steam boilers; Thermal turbines and plants. Basic elements and classification steam turbines plants; Heating and cooling; ventilation plants; Refrigerating plants; Motor cycles in engines internal combustion Learning methods: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations. Total available time 						
15.	Forms of teaching / learning activities	15.1.	contact teaching, e-teaching				
16.	Other forms of studying activities	16.1. 16.2.	"				
		16.3.	Home learning				
17.	Method of assessment 17.1. Tests / oral exams			70 n	points		
	17.1. Tests / oral exams17.2. Seminars (paper / progand/or oral)	ject - pr	resentation: written		points		
	17.3. Activity and participat	tion		20 pc	oints		
18.	Assessment Criteria (points / score)	5	up 50 points 51 to 60 points	6(six	re) (F)		
		7	61 to 70 points 71 to 80 points 81 to 90 points	8 (ei	even) (D) ght) (C) ne) (B)		
			91 to 100 points		en) (A)		
19.	Signature requirement and passing the final exam	f	50% of pre-exam activition 2 midterm exams, attending of lectures an	ties or i	minimum 42 points activities and		
20.	Language of teaching / study		Macedonian	a arbear	5510115		
21.	Method of monitoring the qua of teaching		Self-evaluation				

22.	Litera	Literature										
		Required literature										
		Order No.	Author	Publisher	Year							
	22.1.	1.	S. Armenski	Thermotechnical machinery and devices	University "Ss. Cyril and Methodius" Skopje	1995						
		2.										
		3.										
		Additional literature										
		Order No.	Author	Title	Publisher	Year						
	22.2.	1.	I. Petreski	Steam turbines	University "Ss. Cyril and Methodius " Skopje	2004						
		2.	M. Dimitrovski	Engines internal combustion	University "Ss. Cyril and Methodius" Skopje	2001						
		3.										

Ann	Annex No.3 Program of the Course - first cycle studies							
1.	Title of t	he Course	Metalcutting machines and devices					
2.	Code		2MF101312					
3.	Study Pr	ogram	Production Engine	eerin	g			
4.	Organize	er of the study program	University Goce Delcev-Štip					
	(unit or i	nstitute, Faculty,	Faculty of Mechanical Engineering - Vinica					
	departm	ent)	Department of Production Engineering					
5.	Cycle (fin	rst, second and third	First cycle					
	cycle)							
6.	Academi	c year / semester	Third year/	7.	Number of	6		
			Sixth semester		credits			
8.	Professor	r(s)	Assi. Prof. Slavco	Cve	tkov, Ph.D.			
9.	Requirer	nents for enrollment	Passed exam of Passed	roces	sing using cutting a	ınd		
	the Cour	rse	plastic deformation	n				
10.	Purposes	s of the curriculum (comp	etencies):					
	Training	to use processing machine	s for cutting (metale	cuttir	ng machines) as wel	ll as		
	design an	d construction of devices f	for metalcutting ma	chine	es			
11.	Content	of the course program:						
	1. Metalo	cutting machines. Basic pa	arts (construction)	of the	metalcutting mach	ines.		

Lathes, milling machines, cutting machines, boring mills, grinding machines (grinders), insertion machines, mill drill, machines for fine processing and processing centers.

2. Devices of metalcutting machines. Constriction devices, based on processed parts, elements and constriction mechanism, components. Universal assembling devices. Performing special construction of devices for metalcutting machines.

12. **Learning methods:**

Lectures, exercises, individual work, practical classes, home learning, consultations.

13.	Total available time		156 hours			
14.	Distribution of available time		2+2+1 / per week			
15.	Forms of teaching / learning	15.1.	lectures / theoretical	l -	2 hours	
	activities		contact teaching,			
			e-teaching			
		15.2.		tical	2 hours	
			exercises,			
			e-exams, preparatio			
			independent semina	r		
			work			
16.	Other forms of activities	16.1.	Project tasks			
		16.2.	Individual tasks		1 hours	
		16.3.	Home learning			
17.	Method of assessment	ı				
	17.1. Tests / oral exams		70 p		oints	
	17.2. Seminars (paper / projand/or oral)	ject - _I	presentation: written	10 p	ooints	
	17.3. Activity and participat	ion		20 pc	oints	
18.	Assessment Criteria (points /		up 50 points	5(fiv	re) (F)	
	score)		51 to 60 points	6(six	(E)	
			61 to 70 points	7 (se	ven) (D)	
			71 to 80 points	8 (ei	ght) (C)	
			81 to 90 points	9 (ni	ne) (B)	
			91 to 100 points		en) (A)	
19.	Signature requirement and		60% of pre-exam activi			
	passing the final exam		points from 2 midterm of		1 0	
_			and attending of lectures and discussions			
20.	Language of teaching / study		Macedonian			
21.	Method of monitoring the qua	ality	Self-evaluation			
	of teaching					

22.	Literature									
	22.1.	Requ	Required literature							
		No.	Author	Title	Publisher	Year				
		1.	Slavco Cvetkov	Metalcutting machines	UGD-Stip	2011				
				and devices- script	Mechanical					

				faculty- Vinica		
	2.					
	3.					
Additional literature						
	No.	Author	Title	Publisher	Year	
22.2.	1.	Slavco Cvetkov	Metalcutting machines and devices- script	UGD-Stip Mechanical faculty- Vinica	2011	
	2.	Tanovic LJ., Jovicic M.	Tools and devices - design, calculation and construction of auxiliary equipment	Mechanical faculty Belgrade	2008	
	3.					

Ann	nex No.3 Program of the Cour	se - fi	rst cycle studi	es					
1.	Title of the Course	M	echatronics						
2.	Code	2N	/IF102612						
3.	Study Program	Pr	oduction Engin	neerii	ng				
4.	Organizer of the study program		niversity "Goce						
	(unit or institute, Faculty,	Fa	Faculty of Mechanical Engineering -Vinica						
	department)								
5.	Cycle (first, second and third	Fi	rst cycle						
	cycle)								
6.	Academic year / semester	Th	ird/sixth	7.	Number	of ECTS	4		
					credits				
8.	Professor (s)		si. Prof. Zlatko	V.S	Sovreski, P	h.D			
9.	Requirements for enrollment the	e No	No						
	Course								
10.	Purposes of the curriculum (com								
	Introducing Mechatronics and med		nic component	s to	students				
11.	Contents of the course programs								
	Introduction to Mechatronics; Col						ıs;		
	Mechanical actuators systems; Ma	_	•		_	•			
	analyses; robotic systems; Reliabil	•	-		•	s; research	studies:		
- 10	CNC machines and robotic arm; d	esign	of mechatronic	syst	tems;				
12.	Learning methods:								
10	Lectures, Laboratory exercises, e-	learnii		and to	eam projec	ets, consulta	itions.		
13.	Total available time		120						
14.	Distribution of available time		2+1+1						
15	Forms of too shing / looming	15 1	lootuwaa / 4h a	0704	iaal	2			
15.	Forms of teaching / learning activities	15.1.	lectures / the			2			
	acuvities		contact teach	ung,					
			e-teaching			1			

				15.2.		theoretical and pract exercises, e-exams, preparatior independent seminar work	of	1	
16.	Other	forms of	activities	16.1.	•	Project tasks			
				16.2.	•	Individual tasks		1	
				16.3.	•	Home learning			
17.	Metho	od of asse	ssment	I					
	17.1.	Tests / o	ral exams				70 p	oints	
	17.2.	17.2. Seminars (paper / project - and/or oral)			res	sentation: written	10 p	ooints	
	17.3.	Activity	and participati	ion			20 pc	oints	
18.	Assess	Assessment Criteria (points /			up	50 points	5(fiv	re) (F)	
	score)				51	to 60 points	6(six	(E)	
						to 70 points	,	even) (D)	
						to 80 points	8 (eight) (C)		
				-		to 90 points	9 (nine) (B)		
10	G.					to 100 points		en) (A)	
19.	_	_	irement and			% of pre-exam activiti			
	passin	g the fina	ıı exam			om 2 midterm exams, pending of lectures and			na
20.	Langi	lage of te	aching / study			acedonian	uiscu	8810118	
21.			itoring the qua			lf-evaluation			
	of tea		<i>8</i> 1	•					
22.	Litera	iture							
		Require	d literature						
		Order	Author		T	itle	Pul	blisher	Year
		No.	C - 1c -:		_	/1 +	T T	'4 - 1 IZ'	2005
		1.	Godfrej C.Onvubolu			Iechatronics - rinciples and		ited King wn,	2005
	22.1.		C.Onvubolu			applications	do	w 11,	
		2.							
		3.							
		Addition	al literature						
		Order	Author			Title	Publ	isher	Year
	22.5	No.							
	22.2.	1.							
		2.							
		3.							
	22.2.	No. 1. 2.							

Ann	Program of the Coun	rse - fir	st cycle studies	5					
1.	Title of the Course	W	aste managem	ent					
2.	Code		2MF107212						
3.	Study Program		Production Engineering						
4.	Organizer of the study progra		niversity Goce						
₹.	(unit or institute, Faculty, department)		iculty of mecha			ring -Vinio	ca		
5.	Cycle (first, second and third cycle)		1 st cycle						
6.	Academic year / semester	3 ^r	d / 6 th	7.	Number credits		4		
8.	Professor (s)	Pı	of. Orce Spaso	vski, l	PhD				
9.	Requirements for enrollment to Course	the no	one						
10.	Purposes of the curriculum (competencies): Students are introduced to the characteristics of the waste collection, transportation and recycling. Content of the course program:								
	Sources, properties and types of solid waste; Determination of physical, chemical and biological characteristics of the solid waste; Factors affecting the occurrence of solid waste; Waste collection and transport, handling, storage and solid waste compression; Dangerous radioactive wastes; medical waste; Solid waste recycling; Biological Treatment of solid Waste; thermal treatment of waste; burning and the use of heat, gasification and plasma technique; Application of different methods of energy use during heat treatment; sanitary storage of waste.								
12.	Learning methods: Lecturing,	exercis	es						
13.	Total available time		120						
14.	Distribution of available time		2+2+1 / per	week					
15.	Forms of teaching / learning	15.1.	lectures / the			2			
	activities		contact teach e-teaching	ing,					
		15.2.	theoretical ar practical exer e-exams, prej independent work	rcises parat	ion of	1			
16.	Other forms of studying activities	16.1.	Project tasks			hours			
	ucu (1616)	16.2.	2. Individual tasks			1 hours			
		16.3.	Home learning	ng		hours			
17.	Method of assessment								
	17.1. Tests / oral exams				70 p	oints			
	17.2. Seminars (paper / proj and/or oral)	ect - pı	esentation: wr	itten	10 p	oints			

	17.3.	Activity and participation		20 points		
18.	Assess	ment Criteria (points /	up 50 points	5(five) (F)		
	score)		51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	Signat	ure requirement and	60% of pre-exam activi	ties or minimum 42		
	passin	g the final exam	points from 2 midterm	exams, project activities		
			and attending of lectures and discussions			
20.	Langu	age of teaching / study	Macedonian			
21.	Metho	d of monitoring the quality	Self-evaluation			
	of teac	ching				

22.	Litera	Literature										
		Requ	ired literature									
		No.	Author	Title	Publisher	Year						
	22.1.											
		Additional literature										
		No.	Author	Title	Publisher	Year						
		1.	Ilik	Upravljanjem cvrstim	Institut za	1998						
	22.2.			otpadom	ispitivanje							
					materijala Beograd							
		2.			Beograd							
		3.										

Ann	nex No.3	Program of the Cours	e - first cycle studie	es				
1.	Title of th	e Course	Welding and assembly					
2.	Code		2MF101412					
3.	Study Pro	gram	Production Engine	ering	g			
4.	Organizer	of the study program	University "Goce 1	Delc	ev"- Stip.			
	(unit or in	stitute, Faculty,	Faculty of Mechan	ical	Engineering -Vini	ica		
	departme	nt)						
5.	Cycle (firs	st, second and third	First cycle					
	cycle)							
6.	Academic	year / semester	third/ sixth	7.	Number of	6		
					ECTS credits			
8.	Professor	(s)	Assi. Prof. Bratica Temelkoska, Ph.D					
9.	Requirem	ents for enrollment	No					
	the Cours	e						

10.		oses of the curriculum (co			1 41-	-in1iti		
1.1		nts are introduced to the ty		r welding, technologies a	ana tn	eir application		
11.	Content of the course program: Introduction to Welding Technology; Gas welding; arc welding; gas arc welding protection; arc welding; resistance welding, Special welding procedures; Related welding procedures: build-up welding, brazing, soldering; Procedures of merging new materials: welding composites, ceramic materials and plastics; Welding other metal materials. Structure and properties of metals. Structure of the welded junction; corrosionof welded junction. Heat treatment of the base fabric and welded junction; Installation of welded constructions. Learning methods: Theory, practical teaching and auditory exercises Total available time 156 hours Distribution of available time							
13.	Total available time 156 hours							
14.	Distri	bution of available time						
15.		s of teaching / learning	15.1.		-	2		
	activi	ties		contact teaching,				
			15.0	e-teaching	4 -			
			15.2.	-	tical	2		
				exercises,	a of			
				e-exams, preparation of independent seminar				
				work	L			
16.	Other	forms of activities	16.1.	· · · -				
			16.2.	2. Individual tasks		1		
			16.3.	3. Home learning				
17.		od of assessment			r			
	17.1.	Tests / oral exams			70 p	points		
	17.2.	Seminars (paper / proj and/or oral)	ject - _J	presentation: written	10 p	points		
	17.3.	Activity and participat	ion		20 p	oints		
18.	Assess	sment Criteria (points /		up 50 points	5(fiv	re) (F)		
	score)		_	51 to 60 points	_ `	x) (E)		
				61 to 70 points		even) (D)		
			-	71 to 80 points		ght) (C)		
			<u> </u>	81 to 90 points		ne) (B)		
10	u.	4 • 4		91 to 100 points		en) (A)		
19.	_	ture requirement and ng the final exam		60% of pre-exam activit				
	passir	ig me imai exam	points from 2 midterm exams, project activities and attending of lectures and discussions					
20.	Lano	uage of teaching / study		Macedonian	anu (urse ussiOiis		
21.	Metho	od of monitoring the by of teaching		Self-evaluation				
	1	, · · · · · · · · · · · · · · · · · · ·						

22.	Literature			
	22.1	Required literature		

		Order	Author	Title	Publisher	Year	
		No.					
		1.	B.Temelkoska	Merging materials-	University	2010	
				textbook	"Goce		
					Delcev"-		
					Stip.		
					Faculty of		
					Mechanical		
					Engineering		
					-Vinica		
		2.					
		3.					
	22.2	Additional literature					
		Order	Author	Title	Publisher	Year	
		No.					
		1.					
		2.					
		3.					

Study program: PRODUCTION ENGINEERING (4 years)

I Semester-First year					
Mandatory subjects					
SUBJECTS	ECTS	Hours	Total		
Mathematics I	8	3+2+2	216		
Mechanical materials	8	3+2+2	216		
Computer Science	6	2+2+1	156		
Elective subject from the faculty 1	4	2+1+1	120		
Elective subject from the faculty 2	4	2+1+1	120		
Total:	30	12+8+7	828		

I Semester-First year					
Elective subjects					
SUBJECTS	ECTS	Hours	Total		
Basics of Physics	4	2+1+1	120		
Physics II	4	2+1+1	120		
Electrotechnics and elektronics	4	2+1+1	120		
Casting technology	4	2+1+1	120		

II Semester-First year					
Mandatory subjects					
SUBJECTS	ECTS	Hours	Total		
Mathematics II	8	3+2+2	216		
Engineering graphics	6	2+2+1	156		
Technical Mechanics I (statics)	6	2+2+1	156		
Elective subject from the faculty 3	4	2+1+1	120		
Elective subject from the University 1	6	0+0+1	156		
Sports and Recreation	0	0+0+2			
Total:	30	9+7+11	804		

II Semester-First year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
The modern mechanical materials	4	2+1+1	120
Engineering logistics	4	2+1+1	120

IIISemester-Second year				
Mandatory subjects				
SUBJECTS	ECTS	Hours	Total	
Thermodynamics	8	3+2+2	216	
Strength of materials	8	3+2+2	216	
Technical Mechanics II (kinematics, dynamics, oscillations)	6	2+2+1	156	
Elective subject from the faculty 4	4	2+1+1	120	
Elective subject from the faculty 5	4	2+1+1	120	
Total:	30	12+8+7	828	

IIISemester-Second year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Corrosion and corrosion protection	4	2+1+1	120
Probability and statistics	4	2+1+1	120
Ergonomics	4	2+1+1	120
Industrial Management	4	2+1+1	120

VI Semester-Third year					
Mandatory subjects					
SUBJECTS	ECTS	Hours	Total		
Machines and tools for plastic processing,	8	3+2+2	216		
Metal cutting machines and devices	6	2+2+1	156		
Welding and assembly	6	2+2+1	156		
Elective university subject 3	6	2+2+1	156		
Elective subject from the faculty 9	4	2+1+1	120		
Total:	30	11+9+6	804		

VI Semester-Third year				
Elective subjects				
SUBJECTS	ECTS	Hours	Total	
Mechatronics	4	2+1+1	120	
Waste management	4	2+1+1	120	

VII Semester-Fourth year				
Mandatory subjects				
SUBJECTS	ECTS	Hours	Total	
Hydraulic machinery and components	8	3+2+2	216	
Heating, air conditioning and heat systems	8	3+2+2	216	
Basics of automatic control	6	2+2+1	156	
Elective subject from the faculty 10	4	2+1+1	120	
Elective subject from the faculty 11	4	2+1+1	120	
Total:	30	11+8+7	828	

VII Semester-Fourth year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Design of technological processes	4	2+1+1	120
Programming of Computer Numerically Control (CNC) machines	4	2+1+1	120
Modelling and simulations	4	2+1+1	120
Industrial Ventilation	4	2+1+1	120

VIII Semester-Fourth year				
Man Elective subject from the University datory subj	jects			
SUBJECTS	ECTS	Hours	Total	
Quality Management	6	2+2+1	156	
Occupational Safety and Health	6	2+2+1	156	
Elective subject from the University 4	6	2+2+1	156	
Elective subject from the faculty 12	4	2+1+1	120	
Diploma Thesis	8	0+0+8	192	
Total:	30	8+7+12	780	

VIII Semester-Fourth year			
Elective subjects			
SUBJECTS	ECTS	Hours	Total
Computer Aided Manufacturing (CAM)	4	2+1+1	
Energy efficiency	4	2+1+1	

Ann	ex No.3						
		Program of the Course - fir	st cycle studies				
1.	Title of th	e Course	Mathematics 1				
2.	Code		2FI100112				
3.	Study Pro	gram	Production Enginee	ring	/		
			Transport, Organiza	ation	and Logistics		
4.	Organizer	of the study program	University Goce Del	lcev-	Stip		
	(unit or in departme	stitute, Faculty, ent)	Faculty of mechanical engineering -Vinica				
5.	Cycle (firs	t, second and third cycle)	First cycle				
6.	Academic	year / semester	first/first 7. Number of credits				
8.	Professor	(s)	Prof. Jordan Zivano	vik P	hD		
9.	Requirem Course	ents for enrollment the	no				
10.	-	of the curriculum (competer and introduction to higher		high	school mathematic	S	
11.	Content o	f the course program:					
	Axiomatic definition of the real numbers. Limited sets. Intervals, environments, open and closed sets. Absolute value and distance. Mathematical induction. Matrices. Operations with matrices. Some special matrices. Determinants. Minor and algebraic complements. Calculating the inverse matrix. Kramer formulas. Gauss algorithm. Vectors. Collection of vectors. Multiplying a vector by a number. Coordinate system. Scalar, vector and mixed product. Equations of the line and plane. Relationship between lines and planes. Real sequence. Convergence and the limit. Limited and monotonous sequences. Operations with sequences. Zero-sequences and sequences with unlimited grow in absolute value. Number e. Some special sequences. Subsequences. Kauchy's sequence convergence criterion. Real function of a real variable - basic concepts. Examples of functions and some classes of functions - elementary functions. Limits and continuity of functions. Statements and rules for their calculation. Basic theorems in differential calculus. L' Hopital's rule. Monotony and extremes. Second derivative and its application. Examination of functions and construction of graphs. Higher-order derivatives and differentials. Taylor's formula.						
12.	Learning I	methods:					
	Lectures, consultati	laboratory exercises, numeri on	cal exercises, e-learni	ing, s	seminar work, team	work,	

13.	Total available time 216 hours						
14.	Distribution of available time 3+2+2 / per week			3+2+2 / per week			
15.	Forms activit	of teaching / learning ies	15.1.	. lectures / theoretical - contact teaching,		3	
			15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar v	of	2	
16.	Other	forms of activities	16.1.	Project tasks		1	
			16.2.	Individual tasks		1	
			16.3.	Home learning			
17.	Metho	od of assessment				<u> </u>	
	17.1.	Tests / oral exams		70 points			
	17.2.	Seminars (paper / project and/or oral)	t - prese	esentation: written 10 po		oints	
	17.3.	Activity and participation	1	20 poi		oints	
18.	Assess	ment Criteria (points / sco	re)	up 50 points 5(five) (F)		e) (F)	
			!	51 to 60 points	6(six)) (E)	
			(61 to 70 points	7 (se	ven) (D)	
				71 to 80 points	8 (eig	ght) (C)	
			:	81 to 90 points	9 (nir	ne) (B)	
			!	91 to 100 points	10 (te	en) (A)	
19.	_	ure requirement and passi al exam		60% success from all pre-exam activities ie. 42 points from two mid-term exams , seminar paper, attendance of lectures and exercises			
20.	Langua	age of teaching / study		Macedonian			
21.	Metho teachi	od of monitoring the qualitying	y of	Self-evaluation			

22.	Literatu	re
	22.1.	Required literature

		No.	Author	Title	Publisher	Year					
		1.	Glyn James	Modern engineering mathematics	Translation of the government of RM	2009					
		2.	Zivanovik and Assistants	Lectures and exercises of mathematics 1	E-learning	2010					
		3.	B.Trpenovski, N.Celakovski, Gj,Cupona	Visa matematika I-IV	Prosvetno delo, Skopje	1995					
		Additional literature									
		No.	Author	Title	Publisher	Year					
2:	2.2.	1.	M.Merkle	Matematicka analiza	Racunarski fakultet, Beograd	2006					
		2.	Ivan Slapnicar http://www.fesb.hr/mat1	Matematika 1	Fakultet elektr. strojarstva i brodogradnje	2002, Split					
		3.									

Ann	ex No.3	Program of the Course - fi							
1.	Title of th	e Course	Mechanical materi	als					
2.	Code		2MF100112						
3.	Study Pro	gram	Production engineering/Transport Organization and Logistics						
4.	_	of the study program estitute, Faculty, ent)	University Goce Delcev-Stip Faculty of mechanical engineering -Vinica						
5.	Cycle (firs	t, second and third cycle)	First cycle						
6.	Academic	year / semester	First/I semester	7.	Number of credits	8			

8.	Professor (s)	Sla	vco Cvetkov, PhD, Assi. Profes	sor				
9.	Requirements for enrollment the Course	No						
10.	Purposes of the curriculum (compe competences obtained through the applicative studying in the area of r	e necess	sary fund of theoretical, metho					
11.	Content of the course program:							
	Introduction to the material	ls						
	2. Division and structure of me	etals						
	3. Alloys and state diagram							
	4. Steels: Obtaining and labelli	ing						
	5. Carbon steels: structural and	d tool s	teels					
	6. Alloy steel: structural and tool steels							
	7. Heat treatment of steels							
	8. Surface hardening of steels							
	9. Cast iron: gray iron and malleable iron							
	10. Non ferrous metals and their alloys							
	11. Ceramics, glass and compos	ites						
	12. Polymers and non metals (w	vood, le	ather, rubber)					
12.	Learning methods:							
	-Teaching, exercises, projects assign	nment						
13.	Total available time		216					
14.	Distribution of available time		3 + 2 + 2 / per week					
15.	Forms of teaching / learning	15.1.	lectures / theoretical -	3				
	activities		contact teaching,					
	_	45.0	e-teaching	2				
		15.2.	theoretical and practical exercises,	2				
			e-exams, preparation of					
			independent seminar work					
16.	Other forms of activities	16.1.	Project tasks	1 hours				
		16.2.	Individual tasks	1 hours				

			16.3.	Home learning		/ hours		
17.	Metho	od of assessment						
	17.1.	Tests / oral exams			70	points		
	17.2.	Seminars (paper / project and/or oral)	- prese	entation: written	10 p	oints		
	17.3.	Activity and participation			20 pc	oints		
18.	Assess	ment Criteria (points / score	e) u	ıp 50 points	5(five) (F)			
			5	1 to 60 points	6(six) (E)		
			ϵ	51 to 70 points	7 (se	ven) (D)		
			7	1 to 80 points	8 (ei	ght) (C)		
			8	31 to 90 points	9 (nii	ne) (B)		
			9	91 to 100 points	10 (t	en) (A)		
19.	Signat	ure requirement and passin	g 6	50% success from all pre	exam a	activities i.e. 42		
	the fin	nal exam	_ k	pointsfrom two mid-term exams , seminar paper,				
			а	ttendance of lectures an	d exer	cises		
20.	Langu	age of teaching / study	١	Macedonian				
21.	Metho teachi	od of monitoring the quality ng	of S	Self-evaluation				

22.	Literature											
		Requi	Required literature									
		No.	Author	Title	Publisher	Year						
		1.	Angel Tasevski, PhD	Mechanical materials	UGD - Stip	2011						
	22.1.		Vladan Andonovic, MsC									
		2.	Angel Tasevski, PhD	Mechanical materials	UGD - Stip	2011						
		Vlada	Vladan Andonovic, MsC	estimation								
		3.										
		Additional literature										
	22.2.	No.	Author	Title	Publisher	Year						
	۷۷.۷.	1.										
		2.										

3.				
		·	3.	
			3.	

Ann	ex No.3	Program of the Course - first o	ycle studies					
1.	Title of tl	ne Course	Computer Science					
2.	Code		2FI110112					
3.	Study pro	ogram	Production Engineering /					
			Transport, Organization					
4.	_	r of the study program (unit or Faculty, department)	University Goce Delce Faculty of mechanical					
5.	Cycle (fir	st, second, or third study cycle)	First study cycle					
6.	Academi	c year / semester	2012-2013 / first 7. Number of credits 6					
8.	Professo	r (s)	Assi. Professor Zoran Zdravev, PhD					
9.	Requiren	nents for enrollment the Course	No					
10.	Purposes of the curriculum (competencies):							
	 Adopting the basic concepts of computer science and concepts for using computers for communication, research and office work. 							
11.	Contents	of the course program:						
	- lı	ntroduction to computer science:	algorithms, abstraction	, hist	tory,			
	- 0	Computer hardware: introduction,	types, architecture of o	comp	outer systems, Murau la	aw		
	- C	Computer hardware: Peripherals, C	Computer Memory, dig	ital ic	dentification;			
	- C	Computer software: applicative so	ftware, open source so	ftwar	re licenses;			
	- 0	Computer software: system softwa	are, programming langu	iages	;;			
	- 0	Computer software: web services,	online document stora	ge ar	nd editing systems,			
		- Computer networks: LAN, MAN, WAN, topologies, applications that run on network components, connectivity;						
	- 0	Computer networks: Internet, intra	anet, extranet, Internet	serv	ices;			
		Computer security: a concept, a se ryptography;	curity risk, malicious so	ftwa	re, unauthorized acces	S,		

	-	Information systems: introduc	tion, ty	ypes, ERP, CRM, HR, SCM;				
	_	Content Management Systems			S;			
	_	Databases: fundamentals, type			-,			
		Dutabases randamentals, type	.o, aoc					
12.	Learnii	ng methods: Lectures, Laborato	ry exer	rcises, e-learning, individual	and tea	m		
	project	ts, consultations.						
13.	Total a	vailable time		156 hours				
14.	Distrib	ution of available time		2+2+1				
15.		of teaching / learning	15.1.	•	ontact	2		
	activiti	es			teaching, e-teaching			
				theoretical and practical exercises, e-exams,		2		
				preparation of independ	ent			
				seminar work				
16.	Other	forms of studying activities	s 16.1. Project tasks					
			16.2. Individual tasks			1		
	16.3. Home learning							
17.	Metho	d of assessment						
	17.1.	Tests / oral exams		70 po		ints		
	17.2.	Seminars (paper / project - pr	esenta	ation: written and/or oral)	ints			
	17.3.	Activity and participation			20 points			
18.	Assess	ment Criteria (points / score)		Up 50 points	5 (five	e) (F)		
				51 to 60 points	6 (six)	(E)		
				61 to 70 points	7 (sev	ren) (D)		
				71 to 80 points	8 (eig	ht) (C)		
				81 to 90 points	9 (nin	e) (B)		
				91 to 100 points	10 (te	n) (A)		
19.	Signature requirement and passing the		е	60% of pre-exam activities of		•		
	final ex	xam		midterm exams, project act lectures and discussions	ivities a	nd attending of		
20.	Langua	age of teaching / study		Macedonian				
	_							
21.	Metho teachi	d of monitoring the quality of ng		Self-evaluation				
		-						

22.	Literatu	re								
		Requir	ed literature							
		Order No.	Author			Title		Publis	sher	Year
	22.1.	1.	Zoran Zdravev and oth	er	Computer So	cience	e script	UGD		2012
		2.	Zoran Zdravev and oth	er Practicum in Computer Science			puter	UGD		2012
		3.								
		Additio	nal Literature							
		Order No.	Author		Title		Publisher		Year	
	22.2.	1.	Glenn Brookshear	"Computer Science – an overview"			Pearson International edition		2009	
		2.	Carl Reynolds and Pau Tymann	ال	"Principles o Science"	f Con	nputer	McGraw I	Hill	2008
		3.	James O'Brien		"Introduction Systems "	to In	formation	McGraw I	Hill	2008
Ann	nnex No.3									
		Progr	am of the Course - fir	rst/seco	ond/third cyc	le stu	ıdies			
1.	Title of	the Cour	se	Basics of Physics						
2.	Code			2FP12	0512					
3.	Study P	rogram		Produ	ction Engine	ering				
4.	_		study program (unit ulty, department)		rsity Goce De		ngineering	5		
5.	Cycle (fi	rst, seco	nd and third cycle)	First c	ycle					
6.	Academ	Academic year / semester		1/1		7.	Number credits	of	4	
8.	Professor (s)			Prof. Todor Delipetrov, PhD						
9.	Require Course	ments fo	r enrollment the	enroll	ed semester					
10.	D. Purposes of the curriculum (competer									

		its are introduced to the bas lasticity and plasticity of boo		cept	s and laws of physics (Newto	on's laws, I	Hooke's
11.	Test m body t length Newto structu fluctua source		ovemer novem hird La lative	ent, s ent, iw. V defo	Special Theory of Relat the concept of force, I Vork, energy and pow rmation, Hooke's law.	tivity (Newto er. Ela Oscill	time dilati on's first la sticity and ations, alig	on and w, mass, gnment
12.		ng methods: es, exercises (numerical and	practi	cal),	papers and home lear	rning		
13.	Total a	vailable time			216 hours			
14.	Distrib	ution of available time			2 + 1 + 1 / per week			
15.	15. Forms of teaching / learning activities		15.1.	С	ectures / theoretical - ontact teaching, -teaching		2	
	15				heoretical and practic exercises, e-exams, preparation of endependent seminar v	of	1	
16.	Other	forms of activities	16.1.	P	roject tasks			
			16.2. 16.3.		ndividual tasks Iome learning		1	
17.	Metho	d of assessment						
	17.1.	Tests / oral exams				70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	- pres	sentation: written 10 p			oints	
	17.3.	Activity and participation	20 p				oints	
18.	Assess	ment Criteria (points / scor	e)	up !	50 points	5	(five)	(F)
				51 t	to 60 points	6	(six)	(E)
			-	61 t	to 70 points	7	(seven)	(D)
				71 t	to 80 points	8	(eight)	(C)
				81 t	to 90 points	9	(nine)	(B)

		91 to 100 points	10	(ten)	(A)		
19.	Signature requirement and passing the final exam	60% success from all activities before exam i.e. 42 points from two mid-term exams, seminar paper, attendance of lectures and exercises					
20.	Language of teaching / study	Macedonian					
21.	Method of monitoring the quality of teaching	Self-evaluation					

22.	Literati	ure										
		Requi	red literature									
		No.	Author	Title	Publisher	Year						
	22.1.	1.	Todor Delipetrov	Physics 1	RGF	2003						
		2.										
		3.										
		Addit	ional literature	I								
		No.	Author	Title	Publisher	Year						
	22.2.	1.	Lj. Petkovski	General physics	UKIM	1995						
		2.	Z. Stojanov	General physics, book 1	UKIM	1985						
		3.										

Ann	ex No.3 Program of the Course - fir	st/second/third cycle studies
1.	Title of the Course	Physics 2
2.	Code	2FP101212
3.	Study Program	
4.	Organizer of the study program (unit or institute, Faculty, department)	University Goce Delcev Faculty of mechanical engineering

optics: light rejection and image in the flat mirror, thin lens equation, optic Physical optics: nature of light, laser, optical lattice. Atomic and nuclear ph					
9. Requirements for enrollment the Course 10. Purposes of the curriculum (competencies): Students are introduced to the basic concepts and laws of electromagnetis and atomic physics 11. Content of the course program: Heat: temperature, spread of bodies, state of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric currollments (Course program). State of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric currollments (Course) of alternating current, electrical oscillate optics: light rejection and image in the flat mirror, thin lens equation, optice Physical optics: nature of light, laser, optical lattice. Atomic and nuclear phydrogen atom, quantum theory, radioactive radiation, detectors and protein the flat mirror in the flat mi	of 4				
Course 10. Purposes of the curriculum (competencies): Students are introduced to the basic concepts and laws of electromagnetis and atomic physics 11. Content of the course program: Heat: temperature, spread of bodies, state of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric currohm's law, thermal phenomena, magnetic permeability and susceptibility, value of alternating current, power of alternating current, electrical oscillate optics: light rejection and image in the flat mirror, thin lens equation, optice Physical optics: nature of light, laser, optical lattice. Atomic and nuclear phenomena, quantum theory, radioactive radiation, detectors and protein the process of the curriculum state of the process of th					
Students are introduced to the basic concepts and laws of electromagnetis and atomic physics 11. Content of the course program: Heat: temperature, spread of bodies, state of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric cur Ohm's law, thermal phenomena, magnetic permeability and susceptibility, value of alternating current, power of alternating current, electrical oscillate optics: light rejection and image in the flat mirror, thin lens equation, optice Physical optics: nature of light, laser, optical lattice. Atomic and nuclear phenomena atom, quantum theory, radioactive radiation, detectors and protein successions.					
and atomic physics 11. Content of the course program: Heat: temperature, spread of bodies, state of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric cur Ohm's law, thermal phenomena, magnetic permeability and susceptibility, value of alternating current, power of alternating current, electrical oscillate optics: light rejection and image in the flat mirror, thin lens equation, optice Physical optics: nature of light, laser, optical lattice. Atomic and nuclear phenomena, quantum theory, radioactive radiation, detectors and protein process.					
Heat: temperature, spread of bodies, state of gas, melting, boiling, vaporize Electrostatics: Coulomb's law, electrical work and power of the electric cur Ohm's law, thermal phenomena, magnetic permeability and susceptibility, value of alternating current, power of alternating current, electrical oscillate optics: light rejection and image in the flat mirror, thin lens equation, optice Physical optics: nature of light, laser, optical lattice. Atomic and nuclear phydrogen atom, quantum theory, radioactive radiation, detectors and protestical detectors.	sm, optics, nuclear				
Electrostatics: Coulomb's law, electrical work and power of the electric cur Ohm's law, thermal phenomena, magnetic permeability and susceptibility. value of alternating current, power of alternating current, electrical oscillat optics: light rejection and image in the flat mirror, thin lens equation, optic Physical optics: nature of light, laser, optical lattice. Atomic and nuclear ph hydrogen atom, quantum theory, radioactive radiation, detectors and prot					
value of alternating current, power of alternating current, electrical oscillations. Geometrical optics: light rejection and image in the flat mirror, thin lens equation, optical instruments. Physical optics: nature of light, laser, optical lattice. Atomic and nuclear physics: spectrum of hydrogen atom, quantum theory, radioactive radiation, detectors and protection,					
12. Learning methods:					
Lectures, exercises (numerical and practical), papers and home learning					
13.Total available time156 hours					
14. Distribution of available time 2 + 2 + 1 / per week					
15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching	2				
exercises, e-exams, preparation of	2				
independent seminar work					
16. Other forms of activities 16.1. Project tasks					
16.2. Individual tasks	1				
16.3. Home learning					
17. Method of assessment					
17.1. Tests / oral exams 70 poi	i i				

	17.2.	Seminars (paper / project - pro and/or oral)	esentation: written	10 p	oints		
	17.3.	Activity and participation		20 p	oints		
18.	Assess	ment Criteria (points / score)	up 50 points	5	(five)	(F)	
			51 to 60 points	6	(six)	(E)	
			61 to 70 points	7	(seven)	(D)	
			71 to 80 points	8	(eight)	(C)	
			81 to 90 points	9	(nine)	(B)	
			91 to 100 points	10	(ten)	(A)	
19.	Signat	ure requirement and passing	60% success from all activ	vities l	pefore exai	m i.e. 42	
	the fin	al exam	points from two mid-terr	n exar	ns, semina	r paper,	
			attendance of lectures ar				
20.	Langua	age of teaching / study	Macedonian				
21.	Metho teachi	od of monitoring the quality of ng	Self-evaluation				

	Requi	ired literature						
	No.	Author	Title	Publisher	Year			
22.4	1. M. Delipetrev	Physics 2	UGD	2013				
22.1.		B. Doneva						
	2.							
	3.							
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.	Z. Stojanov	General physics, book 2	UKIM	1985			
	2.							
	3.							

Ann	ex No.3	Program of the course-firs	t cycle studies					
1.	Title of th	e Course	Electrotechnics and	d Elec	ctronics			
2.	Code		2ET110012					
3.	Study pro	gram	Production Enginee	ring	/			
			Transport, Organiza	ation	and Logistics			
4.	_	of the study program (unit	University Goce De	lcev-	Stip			
	or institut	e, Faculty, department)	Faculty of mechanic	cal ei	ngineering -Vinica			
5.	Cycle (firs	t, second, or third study	1 st cycle					
6.	Academic	year / semester	1 st / 1 st	7.	Number of EKTS credits	4		
8.	Professor	(s)	Roman Golubovski,	Assi	stant Professor			
9.	Requirem course	ents for enrollment of the	enrolled 1 st semest	er				
10.	Purposes	of the curriculum (competer	ncies):					
	Introducti	on to basic principles of elec	trotechnics and elect	ronic	CS.			
11.	Contents	of the course program:						
	1. El	ectric Current - Intensity, Cur	rent Field, Density					
	2. El	ectric Voltage and Potential						
	3. Basic Laws - Joul's, Ohm's, I & II Kirchhoff's							
	4. Magnetic Flux, Magnetic Field and Magnetism							
	5. Magnetic Induction, Ampere's Law and Magnetic Circuit							
	6. El	ectrical Measurements						
	7. Se	emiconductors						
	8. D	iodes						
	9. B.	IT Transistors						
	10. M	OSFET Transistors						
	11. Tł	nyristors						
	12. 0	perational Amplifiers						
12.	Learning I	methods: Lectures, numerica	l exercises, individua	l and	l team projects, hom	ework.		

13.	Total a	available time		120		
14.	Distrib	oution of available time		2+1+1		
15.	15. Forms of teaching / learning activities		15.1.	lectures / theoretical - contact teaching, e- teaching		2
			15.2.	theoretical and practic exercises, e-exams, preparation of independent seminar		1
16.	Other activit	forms of studying	16.1.	Project tasks		
			16.2.	Individual tasks		1
			16.3.	Home learning		
17.	Metho	od of assessment				
	17.1. Tests / oral exams17.2. Seminars (paper / project - presentation and/or oral)				70 pc	pints
				esentation: written 10 points		
	17.3.	Activity and participation			20 pc	oints
18.	Assessment Criteria (points / score)			Up 50 points	5 (fiv	e) (F)
				51 to 60 points	6 (six) (E)
				61 to 70 points	7 (sev	ven) (D)
				71 to 80 points	8 (eig	tht) (C)
				81 to 90 points	9 (nir	ne) (B)
			!	91 to 100 points	10 (te	en) (A)
19.	_	ure requirement and passin al exam		60% of pre-exam activitie from 2 midterm exams, p attending of lectures and	roject	activities and
20.	Langua	age of teaching / study		Macedonian		
21.	Metho teachi	od of monitoring the quality ng	of	Self-evaluation		

22.	Literatu	re				
	22.1.	Require	d literature			
		Order	Author	Title	Publisher	Year

	No.				
	1.	M. Popnikolova-Radevska	Electrotechnics	TF, Bitola	2004
	2.	M. Kamilovski	Electronics 1	UKIM, Skopje	2005
	Additio	nal Literature	-		
22.2	Order	Author	Title	Publisher	Year
22.2	No.				
	1.				

Ann	ex No.3	Program of the Course - f	irst cycle studies						
1.	Title of th	e Course	Casting technology	1					
2.	Code		2MF101812						
3.	S. Study Program		Production enginee	ering/	,				
			Transport Organiza	Transport Organization and Logistics					
4.	Organizer	of the study program	University Goce De	lcev-	Stip				
	(unit or in departme	stitute, Faculty, nt)	Faculty of mechanic	cal er	ngineering -Vinica				
5.	Cycle (firs	t, second and third cycle)	First cycle						
6.	Academic	year / semester	First / I semester	7.	Number of credits	4			
8.	Professor	(s)	Slavco Cvetkov, Phi	D, Ass	sistant Professor				
9.	Requirem Course	ents for enrollment the	No						
10.	competen	of the curriculum (compet ices obtained through the r e studying in the area of ca	necessary fund of theo		•				
11.	Content of the course program:								
	1.I ntrodu	1.I ntroduction to the casting							
	2. Casting	materials							
	3.Casting	metallurgy							

4. Sand casting 5. Centrifugal casting 6. Precise casting 7. Vacuum casting 8. Casting under pressure 9. Heaters for melting 10. Tools for casting 12. Defects in casting 12. Learning methods: - Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15. Forms of teaching / learning 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / 70 points	12. 13. 14.	5. Cent 6. Prec 7. Vacu 8. Casti 9. Heat 10. Too 11. Con 12. Def Learnir -Teachi Total a Distrib	rifugal casting ise casting um casting ing under pressure ers for melting is for casting struction tools for casting fects in casting ing methods: ing, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
6. Precise casting 7. Vacuum casting 8. Casting under pressure 9. Heaters for melting 10. Tools for casting 11. Construction tools for casting 12. Defects in casting 12. Learning methods: - Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15. Forms of teaching / learning 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12. 13. 14.	6. Precing 7. Vacuum 8. Castin 9. Heater 10. Too 11. Con 12. Def Learnin - Teachin Total a Distribut Forms	ise casting um casting ng under pressure ers for melting Is for casting struction tools for casting ects in casting ng methods: ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
7. Vacuum casting 8. Casting under pressure 9. Heaters for melting 10. Tools for casting 11. Construction tools for casting 12. Defects in casting 12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12. 13. 14.	7.Vacur 8.Castin 9.Heate 10.Too 11.Con 12. Def Learnin -Teachi Total a Distrib	um casting ng under pressure ers for melting Is for casting struction tools for casting ects in casting ng methods: ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
8.Casting under pressure 9.Heaters for melting 10.Tools for casting 11.Construction tools for casting 12. Defects in casting 12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1 lectures / theoretical - contact teaching, e-teaching 15.2 theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1 Project tasks / hours 16.2 Individual tasks 1 hours 16.3 Home learning / hours	12. 13. 14. 15.	8.Casting 9.Heate 10.Too 11.Con 12. Def Learning -Teaching Total a Distribut Forms	ng under pressure ers for melting ls for casting struction tools for casting ects in casting ng methods: ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
9.Heaters for melting 10.Tools for casting 11.Construction tools for casting 12. Defects in casting 12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 120 14. Distribution of available time 15. Forms of teaching / learning activities 15.1 lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12. 13. 14. 15.	9.Heate 10.Too 11.Con 12. Def Learnir -Teachi Total a Distrib	ers for melting Is for casting struction tools for casting ects in casting ig methods: ing, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
10.Tools for casting 11.Construction tools for casting 12. Defects in casting 12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 120 14. Distribution of available time 15. Forms of teaching / learning activities 15. Iectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12.	10.Too 11.Con 12. Def Learnir -Teachi Total a Distrib	Is for casting struction tools for casting fects in casting ing methods: ing, exercises, projects assigivallable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
11. Construction tools for casting 12. Defects in casting 12. Learning methods:	12. 13. 14.	11.Con 12. Def Learnir -Teachi Total a Distrib	struction tools for casting fects in casting fects in casting fig methods: Ing, exercises, projects assignable time feaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12. 13. 14.	12. Def Learnir -Teachi Total a Distrib	ects in casting ng methods: ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
12. Learning methods: -Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1 lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	12. 13. 14.	Learnir -Teachi Total a Distrib	ng methods: ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
-Teaching, exercises, projects assignment 13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	13. 14. 15.	-Teachi Total a Distrib	ng, exercises, projects assig vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
13. Total available time 14. Distribution of available time 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	13. 14. 15.	Total a Distrib	vailable time ution of available time of teaching / learning		2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
14. Distribution of available time 2 + 1 + 1 / per week 15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	14. 15.	Distrib Forms	ution of available time of teaching / learning	15.1.	2 + 1 + 1 / per wee lectures / theoretical contact teaching,		2
15. Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours	15.	Forms	of teaching / learning	15.1.	lectures / theoretical contact teaching,		2
activities contact teaching, e-teaching 15.2.				15.1.	contact teaching,	l -	2
e-teaching 15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours		activiti	es				
15.2. theoretical and practical exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours							
exercises, e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours 17. Method of assessment							
e-exams, preparation of independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours 17. Method of assessment				15.2.	•	tical	1
independent seminar work 16. Other forms of activities 16.1. Project tasks / hours 16.2. Individual tasks 1 hours 16.3. Home learning / hours 17. Method of assessment						n of	
16.2. Individual tasks 1 hours 16.3. Home learning / hours 17. Method of assessment							
16.3. Home learning / hours 17. Method of assessment	16.	Other f	orms of activities	16.1.	Project tasks		/ hours
17. Method of assessment				16.2.	Individual tasks		1 hours
				16.3.	Home learning		/ hours
17.1 Tests / oral oxams 70 points	17.	Metho	d of assessment	l .			
17.1. Tests / Oral exams		17.1.	Tests / oral exams			70	points
17.2. Seminars (paper / project - presentation: written 10 points		17.2.		t - prese	entation: written	10 p	oints
and/or oral)							
17.3. Activity and participation 20 points				1		, i	
18. Assessment Criteria (points / score) up 50 points 5(five) (F)	18.	Assessi	ment Criteria (points / scor				
					51 to 60 points	6(six)) (E)
51 to 60 points 6(six) (E)							

		71 to 80 points	8 (eight) (C)
		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Signature requirement and passing the final exam	60% success from all pre e pointsfrom two mid-term attendance of lectures an	exams , seminar paper,
20.	Language of teaching / study	Macedonian	
21.	Method of monitoring the quality of teaching	Self-evaluation	

	Requi	ired literature						
	No.	Author	Title	Publisher	Year			
22.1.	1.	Zoran Anisic	Production technologies	Visa Tehnicka Skola	2003			
	2.							
	3.							
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.							
	2.							
	3.							

Ann	ex No.3	Program of the Course - fire	rst cycle studies
1.	Title of the Course		Mathematics II
2.	Code		2FI100412
3.	Study Program		Production Engineering /
			Transport, Organization and Logistics

4.	Organizer of the study program (u	nit Un	University Goce Delcev-Stip						
	or institute, Faculty, department)	Fac	Faculty of mechanical engineering -Vinica						
5.	Cycle (first, second and third cycle)) Fir	st cycle						
6.	Academic year / semester	Fir	st/II	7.	Number credits	of	8		
8.	Professor (s)	Pro	of. Martin Lukare	evski	PhD /				
		Pro	of. Jordan Zivano	ovikPł	nD				
9.	Requirements for enrollment the Course	En	rollment of the f	irst c	ycle study	program			
10.	Purposes of the curriculum (competencies):								
	Knowledge and understanding of the of ICT in mathematics, flexible use				ots and th	eories, kno	wledge		
11. Content of the course program:									
	13. The concept of Integral Calculus: Indefinite integral – integration by substitution and integration by parts, fundamental integration formulas, Definite integral-concept, properties and applications.								
	14. Infinite series: Criteria for convergence, alternating series, Conditional and absolute convergence. Sequences and series of functions. Power series. Circle of convergence.								
	15. Multivariate Calculus: definition, properties and graphics of functions with several variables; Partial derivatives; Maximum and minimum values; The total differential.								
	16. Multiple integrals.								
	17. Introduction of differential equations: Terminology and notation; A first-order differential equation for the exponential function; First-order linear differential equations and other types of first-order differential equations.								
12.	Learning methods:								
	– Lectures,								
	e-learning,								
	 individual and tean 	n projec	ts						
	 Consultations. 								
13.	Total available time		216						
14.	Distribution of available time		3+2+2 / per	wee	k				
	1		1						

				e-teaching		
			15.2.	theoretical and practic exercises,	al	2
				e-exams, preparation of		
				independent seminar v	work	
16.	Other	forms of activities	16.1.	Project tasks		1 hours
			16.2.	Individual tasks		1 hours
			16.3.	Home learning		hours
17.	Metho	od of assessment	•	•		
	17.1.	Tests / oral exams			70 p	oints
	17.2. Seminars (paper / project - pr			entation: written	10 p	oints
	17.3.	Activity and participation			20 pc	oints
18.	Assess	ment Criteria (points / scor	e) (up 50 points	5(five	e) (F)
				51 to 60 points	6(six)	(E)
			6	51 to 70 points	7 (se	ven) (D)
			7	71 to 80 points	8 (eig	ght) (C)
			8	31 to 90 points	9 (nir	ne) (B)
			9	91 to 100 points	10 (te	en) (A)
19.	_	ure requirement and passin	_	50% of pre-exam activitie		·
	the in	ai Exdili		rom 2 midterm exams, plattending of lectures and	•	
20.	Langu	age of teaching / study	1	Macedonian		
21.	Metho teachi	od of monitoring the quality ng	of S	Self-evaluation		

22.	Literatu	Literature									
		Requi	red literature								
	22.1.	No.	Author	Title	Publisher	Year					
		1.	Glyn James	Modern engineering mathematics	Translation of the Government	2009					

				of R.Macedonia				
	2.	Milan Merkle	Matematicka analiza	Racunarski Fakultet - Beograd	2007			
	3.	Tatjana Atanasova Pacemska	Matematika 2	Avtorizirani predavanja	2011			
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.	Nikita Sekutkovski	Matematicka analiza 1	Prosvetno delo - Skopje	2008			
	2.	Boro Piperevski	Matematika 2	FEIT - Skopje	2008			
	3.							

Ann	ex No.3	Program of the Course - fi	irst cycle studies					
1.	Title of th	e Course	Engineering graph	ics				
2.	Code		2FP100912	2FP100912				
3.	Study Pro	gram	Production Engineering /Transport, Organization and Logistics					
4.	_	of the study program estitute, Faculty, ent)	University Goce Delcev-Stip Faculty of mechanical engineering -Vinica					
5.	Cycle (firs	t, second and third cycle)	First cycle	First cycle				
6.	Academic	year / semester	First / second semester	7.	Number of credits	6		
8.	Professor	(s)	Assi. Prof. Slavco C	vetko	v, Ph.D.			
9.	Requirem Course	ents for enrollment the	None					
10.	Purposes	of the curriculum (compete	encies):					
	_	n drawing and reading techr parts in the program packag	_	hine p	parts. Training in d	Irawing		

11. Content of the course program:

Technical drawing. Views - basic, special and abbreviated views. Standards. Formats, naming and sizes of technical drawings. Types of lines and their application. Technical Letter. Sections and types of intersections. Marking and hatching at intersections. Labeling and types of quotation. Longitudinal tolerances. The shape and position tolerance. Designation of the quality of surface processing. To put position on machined parts. Listing of the thread. Modeling of parts. Workshop drawing. Formation of the mechanical drawing workshop part given the spatial layout and the orthogonal view. Formation of the mechanical drawing workshop part of assembled drawing. Technical Documentation

12. Learning methods:

Lectures, exercises, individual works, home learning, consultations.

13.	Total a	available time		156 hours	156 hours		
14.	Distrib	oution of available time		2+2+1 / per week			
15.	Forms of teaching / learning activities 15.1. lectures / theoretical - contact teaching, e-teaching				2 hours		
			15.2.	theoretical and practic exercises, e-exams, preparation independent seminar	of	2 hours	
16.	Other	forms of activities	16.1.	Project tasks			
			16.2.	Individual tasks		1 hours	
			16.3.	Home learning			
17.	Metho	od of assessment					
	17.1.	Tests / oral exams			70 p	oints	
	17.2. Seminars (paper / project - presentation: writte and/or oral)		entation: written	10 points			
	17.3.	Activity and participation			20 pc	oints	
18.	Assess	sment Criteria (points / scor	e)	up 50 points	5(five	e) (F)	
				51 to 60 points	6(six) (E)	

61 to 70 points

71 to 80 points

81 to 90 points

7 (seven) (D)

8 (eight) (C)

9 (nine) (B)

		91 to 100 points	10 (ten) (A)		
19.	Signature requirement and passing the final exam	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions			
20.	Language of teaching / study	Macedonian			
21.	Method of monitoring the quality of teaching	Self-evaluation			

2.	Literati	ure								
	22.1.	Required literature								
		No. Author		Title	Publisher	Year				
		 Risto Taškovski 2. 	Risto Taškovski	Engineering Graphics	Mechanical faculty, Skopje	2008				
		3.								
		Additional literature								
		No.	Author	Title	Publisher	Year				
	22.2.	1.								
		2.								
		3.								

Ann	nex No.3	Program of the Course -	first cycle studies						
1.	Title of the	e Course	Technical Mechanics I (statics)						
2.	Code		2MF100212	2MF100212					
3.	Study Program		Production Engineering /Transport, Organization and Logistics						
4.	_	of the study program (unit e, Faculty, department)	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering -Vinica						
5.	Cycle (first	t, second and third cycle)	First cycle	First cycle					
6.	Academic	year / semester	First / second	7.	Number of credits	6			

8.	Professor (s)	As	si. Prof. Slavco Cvetkov, Ph.D				
9.	Requirements for enrollment the Course	No					
10.	Purposes of the curriculum (compe moments, carriers, equilibrium of bo		•	tics: forces,			
11.	Content of the course program:						
	1.System of forces acting in the plane, composition and decomposition of forces acting at a point;						
	2.Momentof force about a point, Va	2. Momentof force about a point, Varignon's theorem;					
	3.System of forces attacking panel u	ınd vari	ious counts;				
	4. Graphic alignment of forces, equ	uilibriun	n of forces;				
	5. Planar carriers, transverse and ax	ial force	es;				
	6.Simple beam loaded with concent	rated fo	orces;				
	7.Simple beam loaded with a contin	iuous lo	oad, coupling forces; Console;				
	8.Beam with overhangs; Gerber car	rier-bea	am;				
	9. Statically determined framework	suppor	ts; Lattice girders;				
	10.Statics in space; Spatial carriers;						
	11.Sliding friction, rolling friction, fr	iction o	f the rope;				
	12.Centre of gravity line, surface an	d body;	; Guldin's theorems;				
12.	Learning methods:						
	Lectures, Laboratory exercises, e-lea	arning,	individual and team projects, co	nsultations.			
13.	Total available time		156 hours				
14.	Distribution of available time		2 +2 +1/ per week				
15.	Forms of teaching / learning	15.1.	lectures / theoretical -	2hours			
	activities		contact teaching,				
			e-teaching				
		15.2.	theoretical and practical exercises,	2hours			
			e-exams, preparation of				
			independent seminar work				
16.	Other forms of activities	16.1.	Project tasks				
		16.2.	Individual tasks	1 hour			

			16.	3. Home learning			
17.	Metho	d of assess	sment				
	17.1.	Tests / or	al exams		70		
	17.2.	Seminars oral)	(paper / project - pre	sentation: written and/or	10		
	17.3.	3. Activity and participation			20		
18.	Assess	ment Crite	ria (points / score)	to 50 points	5(five) (F)		
				from 51 to 60 points	6(six) (E)		
				from 61 to 70 points	7 (seven) (D)		
				from 71 to 80 points	8 (eight) (C)		
				from 81 to 90 points	9 (nine) (B)		
				from 91 to 100 points	10 (ten) (A)		
19.	_	Signature requirement and passing the final exam		60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions			
20.	Langua	ge of teac	hing / study	Macedonian			
21.	Metho teachi		coring the quality of	Self-evaluation			
22.	Literat	ure		1			
		Required	d literature				
		No.	Author	Title	Publisher	Year	
		1.	Simeon Simeonov	Technical mechanics 1(peer reviewed script)	UGD-Stip	2012	
	22.1.	2.	Z.Petrevski, V. Gavrilovski, M. Mickovski	Tasks from Statics	Mechanical faculty Skopje	2008	
		3.	R.Josifova	Technical mechanics 1	Principal -Skopje	1981	
		Addition	al literature		•	•	
	22.2.	No.	Author	Title	Publisher	Year	
	22.2.	1.	B. Andonovic	Technical mechanics 1	Technical Faculty- Bitola	2006	

	2.	E. Bahtovska	Mechanics	Technical Faculty-	
				Bitola	
					2007
	3.				

Ann	ex No.3					
		Program of the Course - fir	st cycle studies			
1.	Title of the	e Course	The modern mecha	nica	l materials	
2.	Code		2MF101912			
3.	Study Program Production engineering/Transport Organization a Logistics					zation and
4.	Organizer	of the study program	University Goce De	lcev-	Stip	
	(unit or institute, Faculty, department) Faculty of mechanical engineering -Vinica					
5.	Cycle (first	t, second and third cycle)	First cycle			
6.	Academic	year / semester	First/I semester	7.	Number of credits	4
8.	Professor	(s)	Slavco Cvetkov, Phi	D, Ass	si. Professor	
9.	Requirem Course	ents for enrollment the	No			
10.	competen	of the curriculum (competer ces obtained through the ne e studying in the area of the	cessary fund of theo	retica		
11.	Content o	f the course program:				
	1. Int	roduction to the newest mat	terials			

	2. The modern engineering	materials						
	3. Composites							
	4. Introduction to fullerenes							
	5. Biomaterials and their usage							
	6. Polymers							
	7. Smart materials							
	8. Cellular materials							
	9. Nanomaterials							
	10. Ceramics							
	11. Wood, paper and glues							
	12. The procedure of materia	al selectio	n					
12.	Learning methods:							
	- Teaching, exercises, pro	jects assig	nment					
13.	Total available time		120					
14.	Distribution of available time		2 + 1 + 1 / per week					
15.	Forms of teaching / learning	15.1.	lectures / theoretical -		2			
15.	Forms of teaching / learning activities	15.1.	lectures / theoretical - contact teaching,		2			
15.		15.1.	-		2			
15.		15.1.	contact teaching, e-teaching theoretical and practical	al	1			
15.			contact teaching, e-teaching theoretical and practical exercises,					
15.			contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of	of				
	activities	15.2.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was	of				
15.		15.2. 16.1.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar with the project tasks	of	1			
	activities	15.2. 16.1. 16.2.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was project tasks Individual tasks	of				
16.	Other forms of activities	15.2. 16.1.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar with the project tasks	of	1			
	Other forms of activities Method of assessment	15.2. 16.1. 16.2.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was project tasks Individual tasks	of vork	1 1 hour			
16.	Other forms of activities Method of assessment 17.1. Tests / oral exams	15.2. 16.1. 16.2. 16.3.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was project tasks Individual tasks Home learning	of vork 70 p	1 hour			
16.	Other forms of activities Method of assessment	15.2. 16.1. 16.2. 16.3.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was project tasks Individual tasks Home learning	of vork 70 p	1 1 hour			
16.	Other forms of activities Method of assessment 17.1. Tests / oral exams 17.2. Seminars (paper / proje	15.2. 16.1. 16.2. 16.3.	contact teaching, e-teaching theoretical and practical exercises, e-exams, preparation of independent seminar was project tasks Individual tasks Home learning	of vork 70 p	1 hour points oints			

18.	Assessment Criteria (points / score)	up 50 points	5(five) (F)
		51 to 60 points	6(six) (E)
		61 to 70 points	7 (seven) (D)
		71 to 80 points	8 (eight) (C)
		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Signature requirement and passing the final exam	60% success from all pre of pointsfrom two mid-term attendance of lectures an	exams, seminar paper,
20.	Language of teaching / study	Macedonian	
21.	Method of monitoring the quality of teaching	Self-evaluation	

	Required literature							
22.1.	No.	Author	Title	Publisher	Year			
	1.	Angel Tasevski, PhD; Vladan Andonovic, MsC	The modern mechanical materials	UGD - Stip	2011			
	2.							
	3.							
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.							
	2.							
	3.							

Annex No.3		

	Program of the Cour	se - first	cycle studies			
1.	Title of the Course	En	gineering logistics			
2.	Code	2N	1F106712			
3.	Study Program		oduction engineering, gistics	/Transport, org	anization	and
4.	, , ,					
	program(unit orinstitute, Facult department)	Fac	culty of mechanical e	ngineering -Vir	ica	
5.	Cycle (first, second and third cyc	c le) Fir	st cycle studies (Bach	elor studies)		
6.	Academic year / semester	Fir	st/Second semester	7. ECTS		4
8.	Professor (s) Prof. Zoran Despodov					ı
9.	Requirements for enrollment the Course No					
	Purposes of the curriculum (competencies): Familiarize students with the fundamentals of Engineering logistics, practical application and ways of making a better use of the resources					
11.	13. Introduction to logistics. Logistics and organization materials. 6. Inter operat transport in the system o Information systems and the flexible manufacturin	n of prod ional tra f engined the activ	luction. 4. Supply of m nsport. 7. Packaging a ering logistics. 9. Tran vities of the logistic sy	naterials. 5. Sto and storage. 8. sportation pro stem. 11. Logis	orage for Means of blems. 10).
12.	Learning methods:					
	-Theory, practical teaching and a	uditory	exercises			
13.	Total availabletime		120			
14.	Distribution of availabletime		2+1+1			
15.	Forms of teaching / learning activities	15.1.	lectures / theoretica teaching, e-teaching	al - contact	2	
		15.2.	theoretical andprac	tical exercises	, 1	

				e-exams, preparationofindependentse	minar	
16.	Other	forms of activities	16.1.	Project tasks		
			16.2.	Individual tasks		1
			16.3.	Home learning		
17.	Metho	d of assessment				L
	17.1.	Tests / oral exams			70 pc	oints
	17.2.	Seminars (paper/proje	ct - pres	sentation: written and/or oral)	10 pc	oints
	17.3.	Activity and participation	on		20 points	
18.	Assess	ment Criteria(points /sco	ore)	up 50points		e) (F)
				51 to 60 points	6(six)	(E)
				61 to 70 points	7 (seven) (D)	
				71 to 80 points	8 (eig	ht) (C)
				81 to 90 points	9 (nin	ne) (B)
				91 to 100 points	10 (te	en) (A)
19.	Signat	ure		60% success from all pre exam a	ctivitie	s i.e. 42
	requir	ementandpassingthefina	ıl	pointsfrom two mid-term exams	, semir	ar paper,
	exam			attendance of lectures and exerc	cises	
20.	Langua	age ofteaching / study		Macedonian		
21.	Metho teachi	d ofmonitoringthe quali ng	ty of	Self-evaluation		

	Requi	red literature			
22.1.	No.	Author	Title	Publisher	Year 2001
	1.	T. Pantelic	Industrial logistics	ICIM, Krusevac	
	2.	V. Jocik	Technical logistics	Nis	2001
	3.				
22.2	Addit	ional literature		I	
22.2.	No.	Author	Title	Publisher	Year

	1.		
	2.		
	3.		

Ann	ex No.3	Program of the Course - fir	st cycle studies				
1.	Title of th	e Course	Thermodynamics				
2.	Code		2MF100312				
3.	Study Pro	gram	Production engined and logistics	ering	/ Transport, organiza	tion	
4.	Organizer	of the study program (unit	University Goce De	lcev-	Stip		
	or institut	e, Faculty, department)	Faculty of mechanical engineering -Vinica				
5.	Cycle (firs	t, second and third cycle)	first cycle				
6.	Academic	year / semester	2/III 7. Number of 8 credits				
8.	Professor	(s)	Assistant Prof. Rad	omir	Cvetanovski, PhD		
9.	Requirem Course	ents for enrollment the	non				
10.	changes, t	of the curriculum (competer he basic gas laws, equation c am; humid air	· · · · · · · · · · · · · · · · · · ·				
11.	Content o	f the course program:					
	 Introductory terms and values of condition; Basic gas laws; Concept of ideal gas and equation of condition of an ideal gas; The main laws of thermodynamics; Specific heat capacity; Changes of condition of ideal gases; Circular process; Recoverable and irreversible processes; Entropy; Double phased fixtures; 						
		; Humid air;	,,		,,,	,	

12.	Learning methods: Lectures with presentations through slides, exerpreparation and presentation of the project assignment					rcises,	independent
13.	Total a	vailable time			216		
14.	Distrib	Distribution of available time			3+2+2 / per week		
15.	activities		15.1.	С	ectures / theoretical - ontact teaching, -teaching		3
			15.2.	e	heoretical and practic xercises, -exams, preparation of ndependent seminar v	of	2
16.	Other	forms of activities	16.1.	P	roject tasks		1 hours
			16.2.	lı	ndividual tasks		1 hours
			16.3.	Н	Iome learning		hours
17.	Metho	d of assessment					
	17.1.	Tests / oral exams				70 p	oints
	17.2.	Seminars (paper / project and/or oral)	t - pres	enta	ntion: written	10 p	oints
	17.3.	Activity and participation				20 pc	oints
18.	Assess	ment Criteria (points / scor	e)	up !	50 points	5(five	e) (F)
				51 t	o 60 points	6(six)	(E)
				61 t	o 70 points	7 (sev	ven) (D)
				71 t	to 80 points	8 (eig	ght) (C)
				81 t	o 90 points	9 (nir	ne) (B)
				91 t	o 100 points	10 (te	en) (A)
19.	•	ure requirement and passin al exam	ng	two	from pre-exam active tests, seminar papers exercises		•
20.	Langua	age of teaching / study		Mad	cedonian		
21.	Metho teachi	d of monitoring the quality ng	of	Self	-evaluation		

	Required literature						
	No. Author		Title	Publisher	Year		
22.1.	Atanas Blazevski Atanas Blazevski	Atanas Blazevski	Termodinamika I	UKIM,	1994		
		Zbirka reseni zadaci po Termodinamika I	UKIM	1996			
	3.						
	Additional literature						
	No.	Author	Title	Publisher	Year		
22.2.	1.	NedjeljkaPetric, Ivo Vojnović, VanjaMartinac	Tehnicka Termodinamika	Kemisko- tehnoloskiFaku Itet - Split	2007		
	2.						
	3.						

Annex No.3 Program of the Course -		first cycle studies					
1.	Title of the	Course	Strength of materials				
2.	Code		2MF100412				
3.	Study Program		Production Engineering /Transport, Organization and Logistics				
4.	_	r of the study program (unit University "Goce Delcev"- Stip.					
	or institute,	Faculty, department)	Faculty of Mechani				
5.	Cycle (first,	second and third cycle)	First cycle				
6.	Academic y	ear / semester	second / third	7.	Number of credits	8	
8.	Professor (s)	Assi. Prof. Simeon Simeonov, Ph.D				
9.	Requirement Course	nts for enrollment the	Attended course of technical mechanics 1				
10.	Purposes of	the curriculum (competer	riculum (competencies):				
	Students are	e introduced to the momer	its of inertia, the types of stresses, dimensioning				
11.	Content of	Content of the course program:					

Geometric features of planar sections: static moment, the moment of inertia, Steiner's theorem; Tensile and compressive: axial stresses, dependence of the stress on the deformation -Hooke's law. Plane stress condition; Shear and torsion; Bending: pure bending, bending from forces, strength calculation, uniform strength, major stresses at the bent beam; Elastic deformations at linear carriers; Statically indeterminate frameworks and carriers; Buckling: Euler and Tetmayer methods; Complex stresses: hypotheses of strength, obliquely bending; Complex stresses of tensile (compressive) and torsion, Complex stresses of tensile (compressive) and bending, Complex stresses of bending and torsion; Cylinder with a thick wall, Tank with thin wall; Strength of the material under dynamic load effect.

12. Learning methods:

Lectures, Laboratory exercises, e-learning, individual and team projects, consultations.

13.	Total available time			216 hours		
14.	Distrib	ution of available time		3 +2 +2/ per week		
15.	Forms of teaching / learning activities 15.1.		lectures / theoretical - contact teaching, e-teaching	3 hours		
			15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar wo		
16.	Other forms of activities		16.1.	Project tasks	1hour	
			16.2.	Individual tasks	1 hour	
			16.3.	Home learning		
17.	Method of assessment					
	17.1.	Tests / oral exams			70	
	17.2.	17.2. Seminars (paper / project - presentation: written and/or oral)			10	

	17.2.	Seminars (paper / project - pro oral)	10	
	17.3.	Activity and participation	20	
18.	. Assessment Criteria (points / score)		to 50 points	5(five)(F)
			from 51 to 60 points	6(six) (E)
			from 61 to 70 points	7 (seven) (D)
			from 71 to 80 points	8 (eight) (C)
			from 81 to 90 points	9 (nine) (B)
			from 91 to 100 points	10 (ten) (A)

19.	_	-	rement and passing	60% of pre-exam activities or minimum 42 points					
	the fin	al exam		from 2 midterm exams, p	•				
				attending of lectures and	discussions				
20.	Langua	age of tea	ching / study	Macedonian					
21.			itoring the quality of	Self-evaluation					
	teachi	ng							
22.	Literat	ure	-						
		Require	ed literature						
		No.	Author	Title	Publisher	Year			
	22.1.	1.	Simeon Simeonov	Strength of material (script)	UGD-Stip	2011			
	22.1.	2.	A.Ilievski, Lj.Todorovska- Azievska, N.Babamov	Strength of material	Dgitprint -Skopje	2008			
		3.	Lj.Trajkovska	Strength of material1	UKIM -Skopje	1993			
		Additio	nal literature						
		No.	Author	Title	Publisher	Year			
		1.	Lj.Trajkovska	Strength of material1	UKIM -Skopje	1993			
	22.2.			Collection tasks,		1993			
	22.2.	2.	K.Angjusev,	Strength of material1	Mechanical	2008			
			D.Korunovski,	Collection tasks,	faculty				
			Z.Petreski,G.Tasevski		Skopje	2008			
		3.							
	<u> </u>								

Ann	nnex No.3 Program of the Course - first cycle studies						
1.	Title of the	Course	Technical Mechanics 2(kinematics, dynamics, oscillations)				
2.	Code		2MF100612				
3.	Study Progr	ram	Production Engineering /Transport, Organization and Logistics				

4.	Organizer of the study program (unit University "Goce Delcev"- Stip.								
	or institute, Faculty, department)		culty of Mechani		•	Vinica			
5.	Cycle (first, second and third cycle)		st cycle						
			· ·						
6.	Academic year / semester		cond/ third	7.		credits	6		
8.	Professor (s)	As	si. Prof. Simeon	Sime	onov, Ph.D				
9.	Requirements for enrollment the Course	No	No						
10.	Purposes of the curriculum (compe	tencies):						
	Students are introduced to the mov	ement	of bodies, kinem	atics	, dynamics a	nd oscillati	ons		
11.	Content of the course program:								
	1.Introduction to kinematics, motion particle, velocity, acceleration;								
	2.Types of motion: rectilinear, harm	onic, ci	rcle, oblique ang	le sh	not;				
	3.Kinematics of a rigid body, transla	ational i	motion, rotation	al mo	otion and pla	ne motion;	;		
	4.Composed motion of a rigid body, composition of translation and rota	•	mpositon of translations, composition of rotations, of a rigid body;						
	5. Introduction to dynamics, dynam motion;	ics of pa	of particle, differentiatial equation of motion, types of						
	6.Laws of mechanics, impulse and venergy;	vork of	force, amount o	f mo	tion, kinetic	energy, pot	tential		
	7.Dynamics of material systems, pri	nciples	of mechanics: La	ıgran	ige-D'Alembe	ert principle	e;		
	8. Moments of inertia of a body,								
	9.Rigid body dynamics, translation motion, rotation motion, plane motion;								
	10.Oscillations general, free oscillation of oscillations is proportional to the		•			llations , re	esistance		
	11. Forced oscillations without resis	tance ,t	orced oscillation	ıs wi	ith resistance	(damped)	;		
	12Application of oscillations in a tec	hnique							
12.	Learning methods:								
	Lectures, Laboratory exercises, e-lea	arning,	individual and te	am p	orojects, cons	sultations.			
13.	Total available time		156 hours						
14.	Distribution of available time		2 +2 +1/ per w	eek					
15.	Forms of teaching / learning activities	15.1.	lectures / theo contact teachir		al -	2 hours			

					e-teaching			
				15.2.	e-exams, preparation o independent seminar w	f	2hours	
16.	Other	forms of a	ctivities	16.1.	Project tasks			
				16.2.	Individual tasks		1 hour	
				16.3.	Home learning			
17.	Metho	d of assess	sment	<u> </u>				
	17.1.	Tests / or	al exams			70		
	17.2.	Seminars oral)	(paper / project	- prese	entation: written and/or	10		
	17.3.	Activity a	nd participation			20		
18.	Assess	ment Crite	ria (points / score	e)	to 50 points	5(five	e)(F)	
					from 51 to 60 points	6(six)	(E)	
					from 61 to 70 points	7 (sev	ven) (D)	
					from 71 to 80 points	8 (eig	ght) (C)	
					from 81 to 90 points	9 (nir	ne) (B)	
					from 91 to 100 points	10 (te	en) (A)	
19.	_	ure require al exam	ement and passing		60% of pre-exam activities from 2 midterm exams, prattending of lectures and	oject a	ctivities and	nts
20.	Langua	age of teac	hing / study		Macedonian			
21.	Metho teachi		oring the quality	of	Self-evaluation			
22.	Literat	ture						
		Required	d literature					
		No.	Author	Ti	itle	Publisl	her	Year
	22.1.	1.	S.Simeonov Z.Sovreski		echnical mechanics (peer reviewed script)	UGD-S	itip	2011
		2.	E,Vetijakoska		inematics, dynamics, scillations	Mecha	anical _/ -Skopje	2008

	3.	E,Vetijakoska	Kinematics	Mechanical faculty-Skopje	2009
	Addition	al literature			
	No.	Author	Title	Publisher	Year
22.2.	1.	B. Andonovic	Technicalmechanics1 collection of solved problems	Technical Faculty- Bitola	1996
	2.	S. Guric	Dynamics and theory of oscillation	Mechanical faculty-beograd	1981
	3.	I . Mickovski Lj. Azievska	Mechanisms and oscillations	Mechanical faculty-Skopje	2001

Ann	ex No.3	Program of the Course - f	irst sysla studios					
		Program of the Course - I	iist cycle studies					
1.	Title of th	e Course	Corrosion and corros	ion _l	protection			
2.	Code		2MF102112					
3.	Study Pro	gram	Production engineering/Transport Organization and Logistics					
4.	_	of the study program stitute, Faculty, nt)	University Goce Delco		•			
5.	Cycle (firs	t, second and third cycle)	First cycle					
6.	Academic	year / semester	Second/IIIsemester	7.	Number of credits	4		
8.	Professor	(s)	Assi. Professor Slavco	Cve	tkov, PhD			
9.	Requirem Course	ents for enrollment the	No					
10.	competen	of the curriculum (competonces obtained through the need through the need of the	ecessary fund of theor	etica	l, methodological			
11.	Content o	f the course program:						

	ı .								
	1.	Introduction to the corros	sion						
	2.	Corrosion in water solution	ons						
	3. Pitting corrosion								
	4.	4. Contact corrosion							
	5.	Corrosion under mechani	cal facto	rs					
	6.	Procedures for metals pro	otection						
	7.	Protection with electrode	potentia	al					
	8.	Anode protection							
	9.	Protection with surface co	oating						
	10.	Electrochemical procedur	es for m	etals protection					
	11.	Coating metals protection	1						
	12.	Constructive methods for	metals ¡	orotection					
12.	Learni	ng methods:							
	-Teach	ing, exercises, projects ass	ignment	:					
13.	Total a	vailable time		120					
14.	Distrib	ution of available time		2 + 1 + 1 / per week					
15.		of teaching / learning	15.1.	lectures / theoretical -		2			
	activit	ies		contact teaching,					
			1-0	e-teaching					
			15.2.	theoretical and practical exercises,		1			
				e-exams, preparation of					
				independent seminar wo	ork				
16.	Other	forms of activities	16.1.	Project tasks					
			16.2.	Individual tasks		1 hour			
			16.3.	Home learning					
17.	Metho	od of assessment	1	<u> </u>		<u> </u>			
	17.1.	Tests / oral exams			70 p	ooints			
	17.2.	Seminars (paper / proje oral)	ct - pres	entation: written and/or	10 p	points			
	17.3.	Activity and participation	n		20 p	oints			
		<u> </u>							

18.	Assessment Criteria (points / score)	up 50 points	5(five) (F)
		51 to 60 points	6(six) (E)
		61 to 70 points	7 (seven) (D)
		71 to 80 points	8 (eight) (C)
		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Signature requirement and passing	60% success from all pre ex	am activities i.e. 42
	the final exam	pointsfrom two mid-term e	xams , seminar paper,
		attendance of lectures and	exercises
20.	Language of teaching / study	Macedonian	
21.	Method of monitoring the quality of teaching	Self-evaluation	

2. Lite	erature	ire									
	Requ	Required literature									
	No.	Author	Title	Publisher	Year						
22.	1. 1.	H.J. Svetomir	Corrosion and protection	Skopje - TMF	1989						
	2.	M. Milenkovic	Corrosion and protection	Belgrade	1966						
	3.										
	Addi	Additional literature									
	No.	Author	Title	Publisher	Year						
22.	2. 1.										
	2.										
	3.										

Ann	ex No.3	Program of the Course - fir	st cycle studies
1.	Title of th	e Course	Probability and statistics

	Code	2FI	2FI130712					
3.	Study Program		Production Engineering /Transport, Organization and Logistics					
4.	Organizer of the study program	Uni	University Goce Delcev - Stip					
	(unit or institute, Faculty, department)	Fac	Faculty of mechanical engineering-Vinica					
5.	Cycle (first, second and third cycle)	Firs	First cycle					
6.	Academic year / semester	Sec	Second/IV 7. Number of defected to credits					
8.	Professor (s)	Pro	f. Tatjana Atanas	sova	Pacemska, Ph.D			
9.	Requirements for enrollment the Course	Enr	ollment of the fi	rst cy	cle study progra	am		
11.	Knowledge and understanding of th statistics and their flexible use in practice. Content of the course program:		encies): basic concepts and theories of probability and tice.					
	space. The axioms of probability. Cla probability. Conditional probability. scheme. Approximate theorems of t	assical o Total p	ory. Random Experiment. Random event. Probability esical definition of probability. Geometric definition of otal probability. Bayes' theorems or rule. Bernoulli' ne Bernoulli' scheme. Discrete and continuous random of the mathematical expectation, variance and dom variables. Law of large numbers. Chebyshev' scriptive statistics. Confidence intervals. Tests of					
	standard deviation. Functions of rar	ndom va	e mathematical e ariables. Law of l	expec arge	tation, variance numbers. Cheby	e and yshev'		
12.	standard deviation. Functions of rar Inequality. Central limit theorem. De	ndom va	e mathematical e ariables. Law of l	expec arge	tation, variance numbers. Cheby	e and yshev'		
12.	standard deviation. Functions of rar Inequality. Central limit theorem. De hypothesis.	ndom va	e mathematical e ariables. Law of l	expec arge	tation, variance numbers. Cheby	e and yshev'		
12.	standard deviation. Functions of rar Inequality. Central limit theorem. De hypothesis. Learning methods:	ndom va	e mathematical e ariables. Law of l	expec arge	tation, variance numbers. Cheby	e and yshev'		
12.	standard deviation. Functions of rar Inequality. Central limit theorem. De hypothesis. Learning methods: - Lectures,	ndom va escripti	e mathematical of ariables. Law of leve statistics. Con	expec arge	tation, variance numbers. Cheby	e and yshev'		
12.	standard deviation. Functions of rar Inequality. Central limit theorem. De hypothesis. Learning methods: - Lectures, - e-learning,	ndom va escripti	e mathematical of ariables. Law of leve statistics. Con	expec arge	tation, variance numbers. Cheby	e and yshev'		
12. 13.	standard deviation. Functions of rar Inequality. Central limit theorem. De hypothesis. Learning methods: - Lectures, - e-learning, - individual and team	ndom va escripti	e mathematical of ariables. Law of leve statistics. Con	expec arge	tation, variance numbers. Cheby	e and yshev'		
	standard deviation. Functions of ran Inequality. Central limit theorem. De hypothesis. Learning methods: - Lectures, - e-learning, - individual and team - Consultations.	ndom va escripti	e mathematical of ariables. Law of law e statistics. Con	exped arge fiden	tation, variance numbers. Cheby	e and yshev'		

			15.2.	theoretical and practic	al	1	
			13.2.	exercises,	aı	1	
				exercises,			
				e-exams, preparation of			
				independent seminar v	vork		
16.	Other	forms of activities	16.1.	Project tasks		hours	
			16.2.	Individual tasks		1 hours	
			16.3.	Home learning		hours	
17.	Metho	od of assessment					
	17.1.	Tests / oral exams			70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	- prese	entation: written	10 p	ooints	
	17.3.	Activity and participation			20 pc	oints	
18.	Assess	ment Criteria (points / score	e) ι	ıp 50 points	5(five	e) (F)	
			5	61 to 60 points	6(six)	(E)	
			E	51 to 70 points	7 (se	ven) (D)	
			7	11 to 80 points	8 (eig	ght) (C)	
			8	31 to 90 points	9 (nir	ne) (B)	
			9	1 to 100 points	10 (te	en) (A)	
19.	Signat	ure requirement and passin	g e	60% of pre-exam activities	or mi	nimum 42 points	
	the fin	from 2 midterm exams, project a			•		
			a	attending oflectures and o	discuss	ions	
20.	Langua	age of teaching / study	N	Macedonian			
21.	Metho	nd of monitoring the quality ng	of S	Self-evaluation			

22.	Literature									
		Requi	Required literature							
		No.	Author	Title	Publisher	Year				
	22.1.	1.	Risto Malceski	Voved vo teorijata na verojatnosta	FON	2006				
		2.	Željko Pauše	Uvod u matematičku statistiku	Školska knjiga, Zagreb	1993				

	3.	Nikola Tuneski, Biljana Jolevska-Tuneska	Zbirka reseni zadaci po Verojatnost i statistika	Masinski Fakultet - Skopje	2011
	Additio	onal literature			
	No.	Author	Title	Publisher	Year
22.2.	1.				
	2.				
	3.				

Ann	ex No.3 Program of the Course	- first/second/third cycle	estudies			
1.	Title of the Course	Ergonomics				
2.	Code	2MF106812				
3.	Study Program	Production engineering logistics	g/Trans	port, organiza	ation and	
4.	Organizer of the study	University Goce Delce	v-Stip			
	program(unit orinstitute, Faculty, department)	Faculty of mechanical engineering -Vinica				
5.	Cycle (first, second and third cycle	First cycle studies (Bachelor studies)				
6.	Academic year / semester	Second /third semester	7.	ECTS	4	
8.	Professor (s)	Assi. Prof. Dejan Miral	kovski, F	PhD		
9.	Requirements for enrollment the Course	No				
10.	Purposes ofthe curriculum(compe	tencies):				
	Introduction to ergonomics and its place, characteristics of the work p		sign of t	he workspace	, work	
11.	Content ofthecourse program:					
	1.Introduction to ergonomics, 2. All Ergonomic principles, 4. Ergonomic of the workspace in modern office conditions, 8. Presentation of visual	cs as a field for quality imps, 6. Ambient perception,	roveme 7. Impa	ent, 5. Ergono ct of lighting i	mic desigi n working	

	_	Design for special groups of people, 11. Human errors, accidents and safety at work, 12. Rhythm of the body, working ability and effects of the alcohol.							
12.	Learni	ng methods:							
		Lectures, exercis	es, indi	vidu	al tasks				
13.	Total a	vailabletime			120				
14.	Distrib	Distribution of availabletime 2+1+1 / per week							
15.		of teaching / learning	15.1.	ما	ctures / theoretical - contac	·+	2		
13.	activiti		15.1.		aching,		2		
				e-	teaching				
			15.2.	th	eoretical andpractical exer	cises,	1		
				e-	exams,				
				1 -	reparation of independentse	minar			
					ork				
16.	Other	forms of activities	16.1.				hours		
			16.2.	In	dividual tasks		1 hours		
			16.3.	Н	ome learning		hours		
17.	Metho	d of assessment	•	•					
	17.1.	Tests / oral exams				70 pc	oints		
	17.2.	Seminars (paper/projec	t - pres	enta	ntion: written and/or oral)	10 pc	oints		
	17.3.	Activity and participation	n			20 po	ints		
18.	Assess	ment Criteria(points /sco	re)	up 5	Opoints	5(five) (F)		
				51 to	o 60 points	6(six)	(E)		
				61 to	o 70 points	7 (sev	en) (D)		
				71 to	o 80 points	8 (eig	ht) (C)		
				81 to	o 90 points	9 (nin	e) (B)		
				91 to	o 100 points	10 (te	n) (A)		
19.	Signat				of pre-exam activities or mi		•		
	require exam	ementandpassingthefinal			n 2 midterm exams, project and discuss		es and		
20.	Langua	age ofteaching / study		Mac	edonian				

21.	Method ofmonitoringthe quality of	Self-evaluation
	teaching	

	Required literature								
	No.	Author	Title	Publisher	Year				
22.1.	1.	Prof. R. Polenakovik	"Ergonomics" (customized lectures)	UKIM, Faculty of Mechanical Engineering, Skopje	2007				
	2. 3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.								
	2.								
	3.								

Ann	ex No.3	Program of the Course	- first cycle studies
1.	Title of the	Course	Industrial Management
2.	Code		2MF106912
3.	Study Progr	ram	Production Engineering /Transport, Organization and Logistics
4.	Organizer o	f the study program	University Goce Delcev-Stip
	(unit or inst	itute, Faculty, t)	Faculty of mechanical engineering -Vinica
5.	Cycle (first,	second and third cycle)	First cycle

6.	Academic year / semester		cond/Third mester	7.	Number of credits	ECTS	4		
8.	Professor (s)	As	Assi. Prof. Misko Dzidrov, Ph.D						
9.	Requirements for enrollment the Course	e No)						
10.	Purposes of the curriculum (comporganizing and staffing, leadershi		-	igerial	functions: pl	anning,			
11.	Contents of the course program:								
	Introduction to Managen	nent							
	2. Problem solving and decision making								
	3. Information and information systems								
	4. Fundamentals of organizational communication								
	5. Organizational communication - flows, networks and types								
	6. Management by objectives and managerial function of planning								
	7. Managerial function of organizing: division and grouping of work								
	8. Managerial function of organization: coordination, management range and organizational design								
	9. Organizational conflicts								
	10. Staffing and Motivating								
	11. Styles of leadership and types of managers								
	12. Systems and processes in controlling								
12.	Learning methods:								
	Interactive teaching, exercises, in individual-study.	dividua	l and/or team work	on pro	ojects, consul	tations a	nd		
13.	Total availabletime		120 hours						
14.	Distribution of availabletime		2 +1 +1						
15.	Forms of teaching / learning activities	15.1.	lectures / theoret teaching,	ical - c	contact	2			
		15.2.	theoretical andpra	actical	l exercises	1			
		13.2.		uctical	caercises,	1			
			e-exams, preparationofinde work	epend	entseminar				

16.	Other	forms of activities	16.1.	Project tasks		
			16.2.	Individual tasks		1
			16.3.	Home learning		
17.	Metho	od of assessment				
	17.1.	Tests / oral exams			70 pc	oints
	17.2.	Seminars (paper/project	t - prese	entation: written and/or oral)	10 pc	oints
	17.3.	Activity and participation	1		20 po	ints
18.	Assess	ment Criteria(points /scor	e) u	ıp 50points	5(five	e) (F)
			5	1 to 60 points	6(six)	(E)
			6	1 to 70 points	7 (sev	/en) (D)
			7	1 to 80 points	8 (eig	ht) (C)
			8	31 to 90 points	9 (nin	ie) (B)
			9	1 to 100 points	10 (te	en) (A)
19.	Signat requir exam	ure ementandpassingthefinal	n	50% of pre-exam activities or mi nidterm exams, project activitie ectures and discussions		·
20.		age ofteaching / study		Macedonian		
21.	Metho teachi	od ofmonitoringthe quality ng	of	self-evaluation		

22.	Literat	ure									
		Required	Required literature								
		Order	Author	Title	Publisher	Year					
		No.									
	22.1.	1.	T. Kralev	Management Principles	CIM	2001					
				Part 1							
		2.									
		3.									
	22.2.	Addition	Additional literature								
		Order	Author	Title	Publisher	Year					

	No.				
	1.	T. Kralev	Management Principles	CIM	2005
			Part 1		
	2.	T. Kralev	Management Principles	CIM	2005
			Handbook		
	3.	V. Bulat	Industrial Management	Faculty for Industrial Management - Kruševac	2007

Ann	ex No.3	Program of the Course -	first cycle studies					
1.	Title of the	Course	Machine elements					
2.	Code		2MF100712					
3.	Study Progr	am	Production Engineering /Transport, Organization and Logistics					
4.	Organizer o	f the study program (unit	t University "Goce Delcev"- Stip.					
	or institute,	Faculty, department)	Faculty of Mechanical Engineering -Vinica					
5.	Cycle (first,	second and third cycle)	First cycle					
6.	Academic y	ear / semester	second / fourth 7. Number of credits 8					
8.	Professor (s)	Assi. Prof. Ph.D Sim	eon	Simeonov			
9.	Requirement Course	nts for enrollment the	Attended course of	Stre	ngth of material			
10.	Purposes of	the curriculum (competer	ıcies):					
	Students are constructing	e introduced to the propert g;	ies of machine eleme	ents,	their dimensioning and	d		
11.	Content of	the course program:						
	Elements for joining. Separable threaded fasteners, types, threaded transmitters, threaded fasteners, material, calculation; Wedges, serrated joints, pins. Inseparable fasteners (rivets, welded connections);							
	Springs, flexible springs, spirally screw springs, construction and calculation; Bearing, ball bearing (rolling bearings), sleeve bearing (slide bearings), construction and calculation; Clutches, constantly engaged, engaged-disengaged manageable clutches, automatic clutches. Installation of pipes; Gears, cylindrical gears, construction and calculation. Conical gears,					utches.		

	constru Chains	uction and calculation; Worn	n and	gea	ar sets; Belts transmitters	; Friction	on transmitters;	
12.	Learnin	ng methods:						
	Lecture	es, Laboratory exercises, e-le	earning	g, ir	ndividual and team proje	cts, cor	nsultations.	
13.	Total a	vailable time		216 hours				
14.	Distribution of available time				3 +2 +2/ per week			
15.	Forms of teaching / learning activities 15.1.			•	lectures / theoretical - contact teaching,		3 hours	
					e-teaching			
			15.2		theoretical and practical exercises,	al	2hours	
					e-exams, preparation of independent seminar v			
16.	. Other forms of activities				Project tasks		1hour	
			16.2	•	Individual tasks		1 hour	
			16.3		Home learning			
17.	Metho	d of assessment	•					
	17.1.	Tests / oral exams				70		
	17.2.	Seminars (paper / project oral)	t - pres	sen	tation: written and/or	10		
	17.3.	Activity and participation				20		
18.	Assess	ment Criteria (points / score	e)	to	50 points	5(five	e)(F)	
				fro	om 51 to 60 points	6(six)	(E)	
				fro	om 61 to 70 points	7 (sev	ven) (D)	
				from 71 to 80 points		8 (eig	ght) (C)	
				fro	om 81 to 90 points	9 (nir	ne) (B)	
				fro	om 91 to 100 points	10 (te	en) (A)	
19.	_	ure requirement and passing al exam	g	fro	0% of pre-exam activities om 2 midterm exams, protenting of lectures and d	oject ad	ctivities and	
20.	Langua	nge of teaching / study		М	acedonian			
21.	Metho teachir	d of monitoring the quality ng	of	Se	elf-evaluation			

22.	Literat	ure										
		Requir	Required literature									
		No.	Author	Title	Publisher	Year						
	22.1.	1.	Simeon Simeonov	Strength of material (script)	UGD-Stip	2011						
		2.	D.Stamboliev	Machine elements ,1,2	UKIM Skopje	1975						
		3.	K.Trimcevski	Machine elements	Mechanical faculty - Skopje							
		Additio	onal literature		I							
		No.	Author	Title	Publisher	Year						
	22.2.	1.	M. Ognjanovik	Mechanical elements	Mechanical faculty - Beograd	2008						
		2.	S.Simeonov	Mechanical elements- collection tasks	UGD -Stip	2011						
		3.										

Anr	nex No.3	Program of the Course - f	irst cycle studies					
1.	Title of th	e Course	Fluid Mechanics					
2.	Code	2MF100812						
3.	Study Pro	gram	Production Engineering /Transport, Organization and Logistics					
4.	_	of the study program estitute, Faculty, ent)	University Goce De Faculty of mechanic		•			
5.	Cycle (firs	t, second and third cycle)	First cycle					
6.	Academic	year / semester	II/IV semester	7.	Number of credits	6		
8.	Professor	(s)	Assi. Prof. Radomir Cvetanoski, Ph.D					

9.	Requir Course	rements for enrollment the	n	one				
10.		ses of the curriculum (comp and training for calculations		-	_			
11.	Tasks a proper Statics throug of app shock.	and application of fluid meclaries of gases; most important of fluids; Kinematics flow; in the electrical flow; two-dimental lication of fluid mechanics (I	nt therr deal flu nsional	noc id d pot	lynamic and physical polynamics; Some elemer ential flow; convection	ropert ntary f viscou	ies of liquids; lows ideal fluid us fluid; Methods	
12.	Theore	Theoretical lectures, auditory exercises, lectures with presentations through slides, exercises, independent elaboration and defense of the project task						
13.	Total a	available time			156 hours			
14.	Distrib	oution of available time			2+2+1 / per week			
15.	Forms activit	of teaching / learning ies	15.1. 15.2.	e ti	ectures / theoretical - ontact teaching, -teaching heoretical and practica	al	2	
				е	xercises, -exams, preparation o ndependent seminar w			
16.	Other	forms of activities	16.1.	P	roject tasks		hours	
			16.2.	Ir	ndividual tasks		1 hours	
			16.3.	Н	Iome learning		hours	
17.	Metho	od of assessment						
	17.1.	Tests / oral exams				70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	t - prese	enta	ation: written	10 p	oints	
	17.3.	Activity and participation				20 pc	pints	
18.	Assess	ment Criteria (points / scor	e)	up 5	50 points	5(five	e) (F)	

		51 to 60 points	6(six) (E)		
		61 to 70 points	7 (seven) (D)		
		71 to 80 points	8 (eight) (C)		
		81 to 90 points	9 (nine) (B)		
		91 to 100 points	10 (ten) (A)		
19.	Signature requirement and passing the final exam	60% of pre-exam activities i.e. 42 points from two mid-term exams , seminar paper, attendance of lectures and exercises			
20.	Language of teaching / study	Macedonian language			
21.	Method of monitoring the quality of teaching	Self-evaluation			

	Required literature								
	No.	Author	Title	Publisher	Year				
22.1.	1.	Ass. Prof. Ph.D Radomir Cvetanoski	Fluid Mechanics	UGD	2009				
	2. Frank White	Fluid Mechanics	Ars Lamina Skopje	2009					
	3.	Ilija Mijakovski	Fluid Mechanics- collection solution tasks	Technical Faculty - Bitola	1994				
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.								
	2.								
	3.								

Annex No.3	
	Program of the Course - first cycle studies

1.	Title of the Course	Νι	Numerical methods						
2.	Code	2F	P101512						
3.	Study Program		Production Engineering /Transport, Organization and Logistics						
4.	Organizer of the study program (unit or institute, Faculty, department)		University Goce Delcev-Stip Faculty of mechanical engineering -Vinica						
5.	Cycle (first, second and third cycle	e) Fir	st cycle						
6.	Academic year / semester	Se	cond/Fourth	7.	Number of credits	6			
8.	Professor (s)	Pro	of. Blagoj Golome	eov, P	h.D.				
9.	Requirements for enrollment the Course	No)						
10.	Purposes of the curriculum (competencies): Students are introduced to the basics of numerical mathematics.								
11.	Approximately solving equations of method. Secant method. Interpolation's formula be Numerical differentiation, Newtor and Simpson's rule. Gaussian elim solution of ordinary differential ecorder methods. Runge-Kuta method Techniques for network planning. Fulker rule. PERT method- time and	with one lation. Fack and interpolition, quations od. Poly Project,	unknown. Metholynomial interpolation. Numerical Jakob and Gausson Taylor series momial regression activity, event. F	od of olationsions of integral	halving. Newton-Ron. Lagrange formulal interpolation. gration. Newton IP. elov method. Nume s. Euler method. High thod of least square attation of addicted a	a. Trapeze rical gher- es.			
12.	Learning methods:								
	Lectures, e-learning, individual and	d team _l	orojects, consulta	ations					
13.	Total available time		156						
14.	Distribution of available time		2+2+1 / per v	week					
15.	Forms of teaching / learning activities	15.1.	lectures / theoretic contact teaching		1- 2				
		15.2.	theoretical and exercises,	prac	tical 2				

				e-exams, preparation of independent seminar w		
16.	Other	forms of activities	16.1.	Project tasks		
			16.2.	Individual tasks		1
			16.3.	Home learning		
17.	Metho	od of assessment				
	17.1.	Tests / oral exams			70 p	oints
	17.2.	Seminars (paper / proje and/or oral)	ct - pres	sentation: written	10 p	oints
	17.3.	Activity and participation	n		20 pc	oints
18.	Assess	ment Criteria (points / sco	ore)	up 50 points	5(five	e) (F)
				51 to 60 points	6(six)	(E)
				61 to 70 points	7 (se	ven) (D)
				71 to 80 points	8 (eig	ght) (C)
				81 to 90 points	9 (nir	ne) (B)
				91 to 100 points	10 (te	en) (A)
19.	_	ure requirement and pass	_	60% of pre-examactivities		·
	the fin	al exam		from 2 midterm exams, pro attending of lectures and d	-	
20.	Langua	age of teaching / study		Macedonian		
21.	Metho teachi	od of monitoring the qualing	ty of	Self-evaluation		

	Requ	ired literature			
	No.	Author	Title	Publisher	Year
22.1.	1.	Blagoj Golomeov	Numerical methods in mining and geology	Faculty of Natural and Technical Sciences	2009
	2.				
	3.				

	No.	Author	Title	Publisher	Year
	1.				

Ann	ex No.3	Program of the Course	- first/second/ third	cycle	studies			
1.	Title of the	Course	Measurement and measuring instruments					
2.	Code		2MF102212					
3.	Study Prog	ram:	Production Engineering /Transport, Organization and Logistics					
4.	_	of the study program titute, Faculty, t)	University Goce Delcev-Stip Faculty of mechanical engineering -Vinica					
5.	Cucle (first,	second, third cycle)	First cycle					
6.	Academic y	rear / semester	Second / fourth 7. Number of ECTS 4 credits					
8.	Professor (s)	Assi. Prof. Bratica T	emel	koska, Ph.D			
9.	Requireme Course	nts for enrolment the	No					
10.	-	f the curriculum (competinstruments and their app	=	ntrod	uced to the types of			
11.	1. Content of the course program: Basic and general terms in metrology; Measurement and measurement concept, defined in terms of metrology; Measuring instruments; caliper rule and micrometers; comparators; yardsticks for measuring angles and cones; Methods for measurement and control coils; measuring machines; Measuring instruments based on optical measurements; pressure measurement. Temperature measurement; Instruments for measuring flow; Measuring force. Instruments for measuring deformations.							
12.	Learning m	ethods;						

	Theore	etical lectures, laboratory ex	cercises	S			
13.	Total a	vailable time			120 hours		
14.	Distrib	ution of the available time			2+1+1		
15.	15. Forms of teaching/ Learning activities		15.1	Lectures - theoretical contact teaching/e-tea		ching	2
			15.2	15.2 Theoretical and practi exercises, e-exams, preparation of indepe seminar work			1
16.	Other	Other forms of activities 16.1 Projects tasks					
	16.2 Individual tasks 16.3 Home learning		16.2	Ir	ndividual tasks		1
			lome learning				
17.	Metho	d of assessment	•				
	17.1. Tests / oral exams,					70 points	
	17.2. Seminars (paper / project - pres / or oral				ntion; written and	10 pc	pints
	17.3.	Activity and participacion				20 points	
18.	Assess	ment Criteria (points / scor	re)	to 5	0 points	5(five) (F)	
				fron	n 51 to 60 points	6(six) (E)
				from 61 to 70 points 7(see		7(sev	ren) (D)
				fron	n 71 to 80 points	8(eig	ght) (C)
				fron	n 81 to 90 points	9(nin	e) (B)
				fron	n 91 to 100 points	10(te	n) (A)
19.	_	ure requirement and passir al exam		fron	of pre-exam activities a 2 midterm exams, pronding of lectures and conding of	oject a	activities and
20.	Langua	age of teaching/study		Mad	cedonian		
21.	Metho teachi	d of monitoring the quality	y of	Self	-evaluation		

22.	Litera	ture					
	Required literature						
	22.1	Order	Author	Title	Publisher	Year	

	No.								
	1.	Bratica Temelkoska	Measurement and measuring instruments-textbook	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering -Vinica	2009				
	2.								
	3.								
	Additional literature								
	Order	Author	Title	Publisher	Year				
22.2	No.								
22.2	1.								
	2.								
	3.								

1							
Ann	ex No.3	Program of the Course - fi	rst cycle studies				
1.	Title of the	Course	Heat transfer				
2.	Code		MF102312				
3.	Study Progr	am	Production Engineering /Transport, Organization and Logistics				
4.	Organizer of the study program (unit or institute, Faculty, department)		University Goce Delcev Faculty of Mechanical Engineering				
5.	Cycle (first,	second and third cycle)	first cycle				
6.	Academic y	ear / semester	II/IV semester	7.	Number of credits	4	
8.	Professor (s	5)	Assi. Prof. Radomir Cvetanoski, Ph.D				
9.	Requirement Course	nts for enrollment the	No				
10.	temperatur	f the curriculum (compete e, the basic types of heat t vices, Heat and types of He	ransfer, conduction, o	conve	·		

11.	Conte	nt of the course program:							
	tranfe	 1.Temperature and heat; Transmission of heat; conduction heat transfer; Convective heat transfer; Radiation heat transfer; Heat; 2. Efficiency of heat exchangers; Classification of heat exchangers; Tubular heat exchangers; Plate heat echangers; Regenerativeheat exchangers; Designing heat exchangers; 							
12.	Learning methods:								
		es with presentations throu project task	gh slid	es, e	xercises, independent	elabo	ration and defense		
13.	Total a	vailable time			120 hours				
14.	Distribution of available time 2 +1+1 / per wee								
15.	5. Forms of teaching / learning activities		15.1.	15.1. lectures / theoretical - contact teaching,			2		
			15.2.	e	theoretical and practical exercises, e-exams, preparation of		1		
					ndependent seminar v	vork			
16.	Other	forms of activities	16.1.		roject tasks		hours		
			16.2.	. Ir	ndividual tasks		1 hours		
			16.3	. Н	ome learning	hours			
17.	Metho	od of assessment		·					
	17.1.	Tests / oral exams				70 points			
	17.2.	Seminars (paper / project and/or oral)	t - pres	senta	ation: written	10 p	oints		
	17.3.	Activity and participation				20 pc	oints		
18.	Assess	ment Criteria (points / scor	re)	up 5	up 50 points 5(five		e) (F)		
			-	51 t	o 60 points	6(six)	(E)		
				61 t	o 70 points	7 (se	ven) (D)		
			-	71 t	o 80 points	8 (eig	ght) (C)		
				81 t	o 90 points	9 (nir	ne) (B)		
				91 t	o 100 points	10 (te	en) (A)		
	I					1			

19.	Signature requirement and passing	60% of pre-exam activities i.e. 42 points from two			
	the final exam	mid-term exams , seminar paper, attendance of			
		lectures and exercises			
20.	Language of teaching / study	Macedonian language			
21.	Method of monitoring the quality of	Self-evaluation			
	teaching				

	Required literature								
	No.	Author	Title	Publisher	Year				
22.1.	1.	A. Mojsovski	Heat transfer and mass	UKIM	1992				
	2.								
	3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.	Schlunder E. U	Heat Exchanger Design Handbook	Hamisphere Publishing Corporation, Washington, USA	1987				
	2.	John H. Lienhard	A heat transfer textbook	Philogiston press	2011				

Ann	ex No.3	Program of the Course - fir	rst cycle studies
1.	Title of th	e Course	Thermo-technical machines
2.	Code		2MF100912
3.	Study Pro	gram	Production engineering

nber of 8 lits i, PhD rmo technical opliances and air
i, PhD rmo technical opliances and air
i, PhD rmo technical opliances and air
rmo technical opliances and air
opliances and air
opliances and air
eat losses; Coefficient
eat losses; Coefficient
nts.
d cooling; ventilation
3
2
rk
1 hours
1 hours
hours
0 points

	17.2.	Seminars (paper / project - pro and/or oral)	esentation: written	10 points		
	17.3.	Activity and participation		20 points		
18.	Assess	ment Criteria (points / score)	up 50 points	5(five) (F)		
			51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	Signat	ure requirement and passing	60% of pre-examactivitie	s or 42 points from the		
	the fin	al exam	two mid-term exams, seminar papers, attendance			
			of lectures and exercises			
20.	Langua	age of teaching / study	Macedonian			
21.	Metho teachi	nd of monitoring the quality of ng	Self-evaluation			

	Required literature								
	No.	Author	Title	Publisher	Year				
22.1.	1. Armenski Slave	Armenski Slave	Termodinamicki masini I uredi	UKIM	1995				
	2.								
	3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.	Petrovski Ilija	Parni kotli	UKIM	2004				
	2.	Dimitrovski Mile	Motori SVS-teorija I	UKIM	2001				
			sovremena oprema						

Ann	ex No.3	Program of the Course	- first cy	cle studies					
1.	Title of the	Course	Pro	Processing using cutting and plastic deformation					
2.	Code		2N	1F101012					
3.	Study Progr	am	Pro	oduction Eng	ineering				
4.	_	f the study program	Un	iversity Goc	e Delcev-	Stip			
	(unit or institute, Faculty, department)			culty of Mec	hanical E	ngineering	- Vinica		
			De	Department of Production Engineering					
5.	Cycle (first,	second and third cycle	e) Fire	st cycle					
6.	Academic y	ear / semester		ird year/ Fift nester	h 7.	Number credits	of	8	
8.	Professor (s)	Ass	Assi. Prof. Slavco Cvetkov, Ph.D.					
9.	Requiremer Course	Requirements for enrollment the Course None							
10.	D. Purposes of the curriculum (competencies):								
	Training and running processes by grinding, processing sheet with plastic deformation and processing technologies using spatial plastic deformation.						on and		
11.	Content of t	he course program:							
	processing a basic eleme sweep, the i	g using grinding: Basic and economical cutting nts of the processed pi number of rotation, all rtion, planning, grindin	g. Processiece, cut owances	sing using cu ting tool, res s for process	itting: prosistance to ing. Proc	oduction op o cutting, s	perations, peed cutt	the ing,	
	2. Processing using plastic deformation : Elementary theoretical basis. Technology of processing metal sheets using cutting.								
12.	Learning me	ethods:							
	Lectures, exercises, individual works, practical classes, home learning, consultations.								
13.	Total availa	ble time		216 hours					
14.	Distribution	of available time		3+2+2 /	per week	ζ			
15.	Forms of tea	aching / learning	15.1.	lectures / t		al -	3 hours		
				e-teaching					
			15.2.	theoretical exercises,	and prac	ctical	2 hours		

				e-exams, preparation of independent seminar v			
16.	Other	forms of activities	16.1.	Project tasks		1hours	
				Individual tasks			
			16.3.	Home learning		1 hours	
17.	Metho	od of assessment	1	1			
	17.1.	Tests / oral exams			70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	t - pres	sentation: written	10 p	points	
	17.3.	Activity and participation	l		oints		
18.	Assess	ment Criteria (points / sco	re)	up 50 points	5(five	e) (F)	
				51 to 60 points	6(six) (E)	
				61 to 70 points	7 (se	ven) (D)	
				71 to 80 points	8 (ei	ght) (C)	
				81 to 90 points	9 (nii	ne) (B)	
			T	91 to 100 points	10 (t	en) (A)	
19.	_	ure requirement and passi	_	60% of pre-exam activities		·	
	the final exam			from 2 midterm exams, project activities and attending of lectures and discussions			
20.	Langua	age of teaching / study		Macedonian			
21.	Method of monitoring the quality of teaching		y of	Self-evaluation			

22.	Literati	ture								
		Required literature								
		No.	Author	Title	Publisher	Year				
	22.1.	1.	Slavco Cvetkov	Processing using cutting and plastic deformation- script	UGD-Stip Mechanical faculty-Vinica	2013				
		2.								
		3.								

	Addit	ional literature				
	No.	Author	Title	Publisher	Year	
22.2.	1. Milisav Kalajdzić 2.		Technology of machine construction	Mechanical faculty, Belgrade	2006	
	2.	Joko Stanić	Processing theory of processes	Mechanical faculty, Belgrade	1994	
	3.	J. Lazarev, V. Strezov	Machines and processing using deformation	Mechanical faculty, Skopje	2001	
	4	D. M. Nikoliċ	Theory of processing II Theory of processing metals using deformation	Mechanical faculty, Belgrade	1999	
	5	D. M. Nikoliċ	Theory of processing II Theory of processing metals using deformation	Mechanical faculty, Belgrade	1999	

Ann	ex No.3	Program of the Course -	first cycle studies					
1.	Title of the	Course	CAD technology					
2.	Code		2MF101112					
3.	Study Progr	am	Production Enginee	ring				
4.	_	f the study program (unit Faculty, department)	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering -Vinica					
5.	Cycle (first,	second and third cycle)	First cycle					
6.	Academic y	ear / semester	third / fifth	7.	Number of credits	6		
8.	Professor (s)	Assi. Prof. Simeon S	Sime	onov, Ph.D	<u> </u>		
9.	Requiremer Course	nts for enrollment the	No					
10.	Purposes of	the curriculum (competen	icies):					
	Students are engineering	Students are introduced to the basics and application of CAD technology in mechanical engineering						
11.	Content of t	he course program:						

	obtaine	Introduction to CAD technology, 2D documentation, Dimensions, Making templates, Primitives obtained by extruding, Primitives obtained by rotation, Primitives obtained by translation along the path, Modeling ribs, Sketched primitives modeling, Creating assemblies of primitives.							
12.		ng methods:	arning	r individual and toam proje	cts so	ncultations			
13.		es, Laboratory exercises, e-le	amme	156 hours		iisuitations.			
14.		ution of available time		2 +2 +1/ per week					
15.						2 hours			
15.	.5. Forms of teaching / learning activities		15.1.	contact teaching,		2 Hours			
				e-teaching					
			15.2.	•	al	2hours			
				exercises,	. c				
				e-exams, preparation of independent seminar v					
16.	Other forms of activities		16.1.	Project tasks					
			16.2.	Individual tasks	Individual tasks				
			16.3.	Home learning					
17.	Metho	d of assessment							
	17.1.	Tests / oral exams		7		70			
	17.2.	Seminars (paper / project oral)	t - pres	entation: written and/or	10				
	17.3.	Activity and participation			20				
18.	Assess	 ment Criteria (points / score	e)	to 50 points	5(five	e)(F)			
				from 51 to 60 points	6(six)) (E)			
				from 61 to 70 points	7 (se	ven) (D)			
				from 71 to 80 points	8 (eig	ght) (C)			
				from 81 to 90 points	9 (nir	ne) (B)			
				from 91 to 100 points	10 (t	en) (A)			
19.	_	ure requirement and passing	g	60% of pre-exam activities		•			
	the iin	ai Exdiii		from 2 midterm exams, pro attending of lectures and o	-				
20.	Langua	ge of teaching / study		Macedonian					

21.	Metho teachi		itoring the quality of	Self-evaluation		
22.	Literat	ure				
		Require	d literature			
		No.	Author	Title	Publisher	Year
	22.1.	1.		SolidWorks –software		
	22.1.			And a book		
		2.				
		3.				
		Additio	nal literature			
		No.	Author	Title	Publisher	Year
	22.2.	1.	G. Devedzik	CAD/CAM technology	Mechanical faculty Kraguevac	2004
		2.				
		3.				
		1				

Ann	Program of the Cour	se - first cycle studies
1.	Title of the Course	Sustainable energy systems
2.	Code	2MF102412
3.	Study Program	Production Engineering
4.	Organizer of the study program (unit or institute, Faculty, department)	University Goce Delcev-Stip Faculty of mechanical engineering -Vinica
5.	Cycle (first, second and third cy	le) first cycle
6.	Academic year / semester	III/V semester 7. Number of credits
8.	Professor (s)	Assi. Prof. Radomir Cvetanoski, Ph.D
9.	Requirements for enrollment the Course	e No

10.	-	Purposes of the curriculum (competencies): Introduction to sustainable energy systems, solar energy, geothermal energy, biomass, wind energy.					
11.	Conte	nt of the course program:					
	 1.Introduction; Classification of sustainable energy systems; Solar energy - features; Devices and application of solar energy for hot water; Devices and application of solar energy for electricity; General geothermal energy; 2.Application of geothermal energy; Energy from biomass - potential sources; obtaining fuel from biomass; devices for obtaining fuel from biomass; wind energy; wind turbines and their application 						
12. Learning methods:							
	Lectures with presentations through slides, exercises, independent elaboration and defense of the project task						
13.	Total a	available time			120 hours		
14.	Distrib	oution of available time			2+1+1 / per week		
15.	Forms activit	of teaching / learning ies	15.1.		ectures / theoretical - ontact teaching,		2
				e	-teaching		
			15.2.		heoretical and practic exercises,	al	1
					e-exams, preparation of endependent seminar v		
16.	Other	forms of activities	16.1.	16.1. Project tasks			hours
			16.2.	I	ndividual tasks		1 hours
			16.3.	H	Iome learning		hours
17.	Metho	nd of assessment					
	17.1.	Tests / oral exams				70 p	oints
	17.2.	Seminars (paper / project and/or oral)	ation: written	10 p	oints		
	17.3.	Activity and participation				20 pc	pints
18.	Assess	ment Criteria (points / sco	re)	up 50 points 5(fi		5(five	e) (F)
				51 t	to 60 points	6(six)	(E)
				61 t	to 70 points	7 (sev	ven) (D)

		71 to 80 points	8 (eight) (C)
		81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)
19.	Signature requirement and passing the final exam	60% of pre-exam activities mid-term exams, seminal lectures and exercises	· ·
20.	Language of teaching / study	Macedonian language	
21.	Method of monitoring the quality of teaching	Self-evaluation	

	Required literature								
	No.	Author	Title	Publisher	Year				
22.1.	1.	S. Armenski	Renewable energy sources	NIP Student comes Skopje	2007				
	2.								
	3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.	G. Kanevce	Sustainable energy systems lectures	Bitola					
	2.	A.M.Laughton	Renewable Energy Sources	Taylor&Francis , London	2003				
	3.								

Annex No.3 Program of the Course - first cycle studies			first cycle studies
1.	Title of the Course		Machinery for transport
2.	Code		2MF109512
3.	Study Program		Production Engineering

4.	Organizer of the study program (u	nit Ur	University "Goce Delcev"- Stip.					
	or institute, Faculty, department)	Fa	Faculty of Mechanical Engineering -Vinica					
5.	Cycle (first, second and third cycle) Fir	rst cycle					
6.	Academic year / semester	th	ird /fifth	7.	Number o	of credits	4	
8.	Professor (s)	As	si. Prof. Simeon S	ime	onov, Ph.D			
9.	Requirements for enrollment the Course	No)					
10.	Purposes of the curriculum (compo	etencies	s):					
	Students are introduced to the type	es of me	eans of trasportat	ion,	calculation	and applica	ation.	
11.	Content of the course program:							
12.	rope drums. Elements for holding t devices, Elements for retention, lift Machines for continuous transport Conveyors with: plates, harrow. Ele	ts, skipp , convey	nents for carrying the load: ropes, chains, chain wheels, load; Brakes, elements for raising, clutches, safety skippers; Transportation vehicles: carts, tractors, forklifts; poveyors with traction components: Conveyor belts; tors; Machines without traction components: roller w conveyors, hydraulic and pneumatic conveyors.					
	Lectures, Laboratory exercises, e-le	earning,	individual and te	am p	orojects, co	nsultations.		
13.	Total available time		120 hours					
14.	Distribution of available time		2 +1 +1/ per w	veek				
15.	Forms of teaching / learning activities	15.1.	lectures / theo contact teachi e-teaching		cal -	2 hours		
		15.2.	theoretical and exercises, e-exams, prep independent s	arati	ion of	1hours		
16.	Other forms of activities	16.1.	Project tasks					
		16.2.	Individual task	(S		1 hour		
		16.3.	Home learning	3				
17.	Method of assessment	1	_1			1		

	17.1.	Tests / oral exams			70	70	
	17.2. Seminars (paper / project - presentation: written and/or oral)				or 10		
	17.3. Activity and participation				20		
18.	Assess	ment Crite	eria (points / score)	to 50 points	5(five)(F)		
				from 51 to 60 points	6(six) (E)	6(six) (E)	
				from 61 to 70 points	7 (seven) (D)	7 (seven) (D)	
				from 71 to 80 points	8 (eight) (C)	8 (eight) (C)	
				from 81 to 90 points	9 (nine) (B)	9 (nine) (B)	
				from 91 to 100 points	10 (ten) (A)		
19.	Signature requirement and passing the final exam			60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions			
20.	Language of teaching / study			Macedonian			
21.	Method of monitoring the quality of teaching			Self-evaluation			
22.	2. Literature						
		Require	d literature				
		No.	Author	Title	Publisher	Year	
	22.1.	1.	S.Simeonov	Machinery for transport (script)	UGD -Stip	2011	
		2.	J.Jancevski	Transporting appliances	Mechanical faculty Skopje	2003	
		3.					
		Additional literature					
		No.	Author	Title	Publisher	Year	
	22.2.	1.	Sava Dedier	Transporting appliances	Mechanical faculty - Beograd	1971	
		2.	Sotir Panovski	Transfered processes	Technical faculty - Bitola	2009	
		3.					

Anne	Annex No.3 Program of the Course -			irst cycle studies	1				
1.	Title of	the Course		Engineering economics					
2.	Code			2MF107012					
3.	Study F	rogram		Production Engineering /Transport, Organization and Logistics					
4.	_	er of the study progra tute, Faculty, departm	=	University Goce Delcev-Stip Faculty of mechanical engineering -Vinica					
5.	Cycle (first, second and third cycle)			First cycle					
6.	Academic year / semester			Third/sixth	7.	Number of ECTS credits	4		
8.	Professor (s)			Assi. Prof. Misko Dzidrov, Ph.D					
9.	Requirements for enrollment the Course			No					
10.	Purpos	Purposes of the curriculum (competencies):							
	investn	g in the field of engine ent decisions among p Il information.	_			•	_		
11.	Conten	ts of the course progra	am:						
	1.	Introduction to the ec	conomic m	methods applied in engineering					
	2.	Decision-making meth	nods						
	3.	Studying of cash flow	concepts						
	4.	Rate of return, return	of investi	ments,					
	5.	Financial indicators fo	r profitab	ility, effectivene	ss, effici	ency,			
	6.	Cost analysis, revenue	e, profits,						
	7.	7. Balance sheet and income statement							
	 Studying of basic economic value analysis (present value, annual analysis, incremental analysis, cost/ benefit analysis) 						remental		
	9.	Methods for calculation	ng of depi	reciation					
	10.	Techniques for estima	ating of ed	quipment replace	ement				
	11.	Making investment de	ecisions ai	mong project alto	ernative	S			

	12. Learning techniques for pro	eparati	on of a business plan and fe	easibili	ty study
12.	Learning methods: Interactive tead consultations and individual learning		exercises, individual and/or	team v	work on projects,
13.	Total available time		120 hours		
14.	Distribution of available time		2 +1 +1		
15.	Forms of teaching / learning activities	15.1.	lectures / theoretical - contact teaching,	contact teaching,	
		15.2.	theoretical and practical exercises, e-exams, preparation of	theoretical and practical exercises, e-exams, preparation of	
1.0	Other forms of activities	16.1.	independent seminar w	ork	
16.			•		1
		16.2. 16.3.			
17.	Method of assessment				
	17.1. Tests / oral exams			70	
	17.2. Seminars (paper / project oral)	- prese	entation: written and/or	10	
	17.3. Activity and participation		20		
18.	Assessment Criteria (points / score	e)	to 50 points	5(five)(F)	
		=	from 51 to 60 points	6(six)	(E)
			from 61 to 70 points	7 (sev	ven) (D)
			from 71 to 80 points	8 (eig	ht) (C)
			from 81 to 90 points		ne) (B)
			from 91 to 100 points	m 91 to 100 points 10 (te	
19.	Signature requirement and passing the final exam	g	60% of pre-exam activities from 2 midterm exams, pro attending of lectures and d	oject a	ctivities and
20.	Language of teaching / study		Macedonian		
21.	Method of monitoring the quality teaching	of	Self-evaluation		

	Require	d literature			
	Order No.	Author	Title	Publisher	Year
22.1.	2.	V. Gecevska D. Bojadzhioski	Engineering Economics Enterprise Economics	Faculty of Mechanical Engineering, UKIM, Skopje Economic Faculty Skopje	1999
	3.	nal literature			
			Title	Dublishon	Vaar
	Order No.	Author	Title	Publisher	Year
22.2.	1.	Michael R. Baye	Managerial Economics & Business Strategy	McGraw-Hill College	2007
	2.				
	3.				

Anr	nex No.3	Program of the Course - fi	rst cycle studies			
1.	Title of th	ne Course	Machines and tools for plastic processing			
2.	Code		2MF101212			
3.	Study Pro	gram	Production Engineering			
4.		r of the study program estitute, Faculty, ent)	University Goce Delcev-Stip Faculty of Mechanical Engineering - Vinica Department of Production Engineering			
5.	Cycle (firs	st, second and third cycle)	e) First cycle			
6.	Academic	c year / semester	Third / Sixth	7.	Number of credits	8

		se	mester				
8.	Professor (s)	As	si. Prof. Slavco Cv	etkov, I	Ph.D		
9.	Requirements for enrollment the Course		ssed exam of Pro formation	cessing	using (cutting and	plastic
10.	Purposes of the curriculum (comp	oetencie	s):				
	Training to usetreatment processe as design and construction of tool	-			_	machines a	s well
11.	Content of the course program:						
	1. Machines for plastic processing. Machines for sheet metal processing, crank and hydraulic presses. Angle bending presses and crank scissors for cutting sheet metal. Hammers and forging presses.						
	2. Tools for plastic processing. Basic elements, components and materials for construction. Constructing tools for sheet metal piercing, punching, bending and drawing. Forging tools for hammers and forging presses.						
12.	Learning methods:						
	Lectures, exercises, individual wor	rk. pract	ical classes, home	learnin	g. cons	sultations.	
	, ,	, ,	•		O,		
13.	Total available time		216 hours				
14.	Distribution of available time		3+2+2 / per	week			
15.	Forms of teaching / learning	15.1.	lectures / theorem			3 hours	
	activities		contact teaching	ıg,			
			e-teaching				
		15.2.	theoretical and exercises,	practic	al	2 hours	
			e-exams, prepa				
			independent se	eminar v	work		
16.	Other forms of activities	16.1.	Project tasks			1 hours	
		16.2.	Individual tasks	5		1 hours	
		16.3.	Home learning				
17.	Method of assessment	1	I			<u> </u>	
	17.1. Tests / oral exams				70 p	oints	
					<u> </u>		

	17.2.	Seminars (paper / project - pro and/or oral)	esentation: written	10 points	
	17.3.	Activity and participation		20 points	
18.	Assess	ment Criteria (points / score)	up 50 points	5(five) (F)	
			51 to 60 points	6(six) (E)	
			61 to 70 points	7 (seven) (D)	
			71 to 80 points	8 (eight) (C)	
			81 to 90 points	9 (nine) (B)	
			91 to 100 points	10 (ten) (A)	
19.	Signat	ure requirement and passing	60% of pre-exam activitie	s or minimum 42 points	
	the fin	al exam	from 2 midterm exams, p	roject activities and	
			attending to lectures and	discussions	
20.	Langua	age of teaching / study	Macedonian		
21.			Self-evaluation		
	teachi	iig			

22.	Literature									
		Requi	ired literature							
		No.	Author	Title	Publisher	Year				
		1.	Slavco Cvetkov	Machines and tools for	UGD-Stip	2013				
	22.1.			plastic processing - script	Mechanical					
					faculty-Vinica					
		2.								
		3.								
		Addit	ional literature		1	l				
		No.	Author	Title	Publisher	Year				
		1.	J, Lazarev	Machines and processing	Mechanical	1994				
	22.2.		V, Strezov.	with deformation	faculty, Skopje					
		2.	M. Jovičiċ,	Tools and equipment -	Mechanical	2007				
			Lj. Tanoviċ	Design and construction tools for making metal sheet parts	faculty, Belgrade					

3.	B. Musafija	Metal processing using	Svjetlost	2001
		plastic deformation	Sarajevo	

Ann	ex No.3	Program of the Course - fi	rst cycl	le studies			
1.	Title of the	Course	Basics	s of internal c	omb	ustion engines	
2.	Code		2MF1	.09112			
3.	Study Prog	ram	Produ	uction Engine	ering		
4.	_	of the study program (unit , Faculty, department)	University "Goce Delcev"- Stip, Faculty of Mechanical Engineering -Vinica				
5.	Cycle (first,	second and third cycle)	First o	cycle			
6.	Academic year / semester		third	/ fifth	7.	Number of ECTS credits	5
8.	Professor (5)	Assi. I	Prof. Zlatko V	. Sov	reski, Ph.D	
9.	Requireme Course	nts for enrollment the	No				
10.	Introductio	the course program: n to basic Thermotechnical revices heating and air condit					
11.	Contents of the course program: Types of energy; energy sources; steam boilers; Heat balance and heat losses; Useful coefficient; construction of steam boilers; Thermal turbines and plants. Basic elements and classification steam turbines plants; Heating and cooling; ventilation plants; Refrigerating plants; Motor cycles in engines internal combustion						
12.	Learning m	ethods:					
	Lectures, La	boratory exercises, e-learni	ng, ind	ividual and te	am p	projects, consultations.	
13.	Total availa	ble time		120 hours			
14.	Distribution	n of available time		2+1+1			

15.	Forms activiti		g / learning	15.1.	lectures / theoretical - contact teaching,		2		
					e-teaching				
				15.2.	theoretical and practical exercises,	ıl	1		
					e-exams, preparation o independent seminar w				
16.		forms of st	udying	16.1.	Project tasks				
	activiti	es		16.2.	Individual tasks		1		
				16.3.	Home learning				
17.	Metho	d of assess	ment						
	17.1.	17.1. Tests / oral exams				oints			
	17.2. Seminars (paper / project - pro oral)			- prese	ntation: written and/or	10 p	oints		
	17.3.	Activity a	nd participation		20 points				
18.	Assess	ment Crite	ria (points / score	e) (up 50 points	5(five) (F)			
				!	51 to 60 points	6(six) (E)			
				•	61 to 70 points	7 (seven) (D)			
				7	71 to 80 points	8 (eight) (C)			
				1	31 to 90 points	9 (nir	ne) (B)		
				9	91 to 100 points	10 (te	en) (A)		
19.	_	ure require al exam	ment and passing	1	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions				
20.	Langua	ge of teacl	hing / study	1	Macedonian				
21.		Method of monitoring the quality of teaching			Self-evaluation				
22.	Literat	ure		l					
	22.1.	Required	literature						
	22.1.	Order	Author		Title	Puk	olisher	Year	
_	-								

	No.							
	1.	S. Armenski	Thermotechnical machinery and devices	University "Ss. Cyril and Methodius" Skopje	1995			
	2.							
	3.							
	Addition	nal literature	I					
	Order No.	Author	Title	Publisher	Year			
22.2.	1.	I. Petreski	Steam turbines	University "Ss. Cyril and Methodius" Skopje	2004			
	2.	M. Dimitrovski	Engines internal combustion	University "Ss. Cyril and Methodius" Skopje	2001			
	3.							

Ann	nex No.3	Program of the Course - fi	m of the Course - first cycle studies			
1.	Title of the Course		Metalcutting machines and devices			
2.	Code		2MF101312			
3.	Study Program		Production Engineering			
4.	Organizer of the study program (unit or institute, Faculty, department)		University Goce Delcev-Štip Faculty of Mechanical Engineering - Vinica			
			Department of Production Engineering			

5.	Cycle (first, second and third cycle	e) Fi	rst cycle				
6.	Acade	mic year / semester		ird year/ Sixth mester	7.	Numbe credits	r of	6
8.	Profes	sor (s)	As	Assi. Prof. Slavco Cvetkov, Ph.D.				
9.	Requir Course	ements for enrollment the		Passed exam of Processing using cutting and plastic deformation				
10.	Purpos	ses of the curriculum (comp	etencie	s):				
		ng to use processing maching nstruction of devices for me			ng ma	achines) a	as well as d	esign
11.	Conte	nt of the course program:						
	1. Met	alcutting machines. Basic p	arts (co	nstruction) of the	meta	lcutting i	machines.	
	Lathes, milling machines, cutting machines, boring mills, grinding machines (grinders), insertion machines, mill drill, machines for fine processing and processing centers.							
	2. Devices of metalcutting machines. Constriction devices, based on processed parts, elements and constriction mechanism, components. Universal assembling devices. Performing special construction of devices for metalcutting machines.							
12.	Learning methods:							
	Lectures, exercises, individual work, practical classes, home learning, consultations.							
13.	Total a	vailable time		156 hours				
14.	Distrib	ution of available time		2+2+1 / per	week			
15.	Forms activit	of teaching / learning ies	15.1.		lectures / theoretical - contact teaching,		2 hours	
			15.2.	theoretical and exercises, e-exams, prepa			2 hours	
				independent se				
16.	Other	forms of activities	16.1.	Project tasks				
			16.2.	Individual task	s		1 hours	
	16.3. Home learning							
17.	Metho	d of assessment	<u> </u>	l			<u> </u>	
	17.1.	Tests / oral exams				70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	t - prese	·				

	17.3.	Activity and participation		20 points		
18.	Assess	sment Criteria (points / score)	up 50 points	5(five) (F)		
			51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	_	ure requirement and passing all exam	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions			
20.	Langu	age of teaching / study	Macedonian			
21.	Metho teachi	od of monitoring the quality of ng	Self-evaluation			

	Requ	ired literature							
	No.	Author	Title	Publisher	Year				
22.1.	1.	Slavco Cvetkov	Metalcutting machines and devices- script	UGD-Stip Mechanical faculty-Vinica	2011				
	2.								
	3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
22.2.	1.	Slavco Cvetkov	Metalcutting machines and devices- script	UGD-Stip Mechanical faculty-Vinica	2011				
	2.	Tanovic LJ., Jovicic M.	Tools and devices - design, calculation and construction of auxiliary equipment	Mechanical faculty Belgrade	2008				

Ann	Annex No.3 Program of the Course - fi			ycle studies					
1.	Title of the	Course	Me	echatronics					
2.	Code		2N	2MF102612					
3.	Study Progr	ram	Pro	oduction Engine	ering	;			
4.	_	of the study program (un , Faculty, department)		University "Goce Delcev" - Stip, Faculty of Mechanical Engineering - Vinica					
5.	Cycle (first,	second and third cycle)	Firs	First cycle					
6.	Academic year / semester		Thi	rd/sixth	7.	Number of ECTS credits	4		
8.	Professor (s	s)	Ass	Assi. Prof. Zlatko V.Sovreski, Ph.D					
9.	Requirements for enrollment the Course								
10.	Purposes of	f the curriculum (compet	encies)):					
	Introducing	Mechatronics and mech	atronic	components to	stuc	lents			
12.	Introduction to Mechatronics; Collecting data; Sensors; Electric actuators systems; Mechanical actuators systems; Management Theory: modeling; Control Theory: analyses; robotic systems; Reliability concept of mechatronic Systems; research studies: CNC machines and robotic arm; design of mechatronic systems;								
13.	Total availa			120		•			
14.		n of available time		2+1+1					
15.	Forms of te activities	eaching / learning	15.1. 15.2.	lectures / theo contact teaching e-teaching theoretical and exercises,	ng,				

		e-exams, preparation of independent seminar work								
1.0	2.1			101	•	WOIK				
16.	Other	forms of a	ctivities	16.1.	Project tasks					
				16.2.	Individual tasks	Individual tasks				
				16.3.	Home learning					
17.	Metho	d of assess	sment							
	17.1.	Tests / or	al exams			70 p	oints			
	17.2.	Seminars oral)	(paper / project	- prese	entation: written and/or	10 p	ooints			
	17.3.	Activity a	nd participation			20 p	(seven) (D) (eight) (C) (nine) (B) D (ten) (A) minimum 42 points ct activities and ussions Publisher Year			
18.	Assess	ment Crite	eria (points / score	e)	up 50 points	5(fiv	points po			
					51 to 60 points	6(six) (E)				
					61 to 70 points	7 (se	ven) (D)			
					71 to 80 points	8 (ei	8 (eight) (C)			
					81 to 90 points	9 (ni	ne) (B)	e) (B)		
				-	91 to 100 points	10 (t	en) (A)			
19.	_	ure require al exam	ement and passing	-	60% of pre-exam activitie from 2 midterm exams, p attending of lectures and	roject a	ctivities and	ints		
20.	Langua	age of teac	hing / study		Macedonian					
21.	Metho teachi		coring the quality	of	Self-evaluation					
22.	Literat	ture								
		Required	literature							
		Order	Author		Title	Pu	blisher	Year		
		No.								
	22.1.	1.	Godfrej C.Onvuk	oolu	Mechatronics - Principle and Applications		_	2005		
	2.									
	3.									

	22.2.	Additiona	Additional literature									
		Order	Author	Title	Publisher	Year						
		No.										
		1.										
		2.										
		3.										

Ann	ex No.3	Program of the Course - firs	st cycle studies				
1.	Title of th	e Course	Waste manageme	nt			
2.	Code		2MF107212				
3.	Study Pro	gram	Production Engineering				
4.	_	of the study program (unit	University Goce De	elcev-	-Stip		
	or institut	e, Faculty, department)	Faculty of mechan	ical e	ngineering -Vinica		
5.	Cycle (firs	t, second and third cycle)	1 st cycle				
6.	Academic year / semester		3 rd / 6 th	7. Number of credits		4	
8.	Professor	(s)	Prof. Orce Spasovs	ki, Ph	nD		
9.	Requirem Course	ents for enrollment the	none				
10.							
11.	11. Content of the course program: Sources, properties and types of solid waste; Determination of physical, chemical and biological characteristics of the solid waste; Factors affecting the occurrence of solid waste; Waste collection and transport, handling, storage and solid waste compression; Dangerous radioactive wastes; medical waste; Solid waste recycling; Biological Treatment of solid						

	technique; Application of different methods of energy use during heat treatment; sanitary storage of waste.							
12.	Learni	ng methods: Lecturing, exe	rcises					
13.	Total a	vailable time			120			
14.	Distrib	ution of available time			2+2+1 / per week			
15.	Forms activiti	of teaching / learning ies	15.1	С	ectures / theoretical ontact teaching, -teaching	-	2	
			15.2		heoretical and practi xercises,	cal	1	
				iı	-exams, preparation ndependent seminar			
16.	Other forms of studying activities		16.1	. Project tasks			hours	
			16.2	. I	Individual tasks		1 hours	
			16.3	. F	Iome learning		hours	
17.	Metho	d of assessment		•				
	17.1.	Tests / oral exams				70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	t - pres	senta	tion: written	10 p	oints	
	17.3.	Activity and participation				20 points		
18.	Assess	ment Criteria (points / sco	re)	up 50 points 5(f		5(five	ive) (F)	
				51 to 60 points 6(six		6(six)) (E)	
				61 t	to 70 points	7 (se	ven) (D)	
				71 to 80 points 8 (e		8 (eig	ght) (C)	
				81 t	o 90 points	9 (nir	ne) (B)	
				91 t	o 100 points	10 (te	en) (A)	
19.	_	ure requirement and passir	ng		6 of pre-exam activition		•	
	the fin	al exam			m 2 midterm exams, pending of lectures and	-		
20.	Langua	age of teaching / study			cedonian			
21.	Language of teaching / study Method of monitoring the quality of teaching			Self-evaluation				
	teaciiii	····b						

22.	Literati	ure							
		Requi	red literature						
		No.	Author	Title	Publisher	Year			
	22.1.								
		Additional literature							
		No.	Author	Title	Publisher	Year			
	22.2.	1.	Ilik	Upravljanjem cvrstim otpadom	Institut za ispitivanje materijala Beograd	1998			
		2.							
		3.							

Ann	ex No.3	Program of the Course -	first cycle studies					
1.	Title of the	Course	Welding and assembly					
2.	Code		2MF101412					
3.	Study Progr	ram	Production Enginee	Production Engineering				
4.	_	of the study program titute, Faculty, t)	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering -Vinica					
5.	Cycle (first,	second and third cycle)	First cycle					
6.	Academic y	ear / semester	third/ sixth	7.	Number of ECTS credits	6		
8.	Professor (s	5)	Assi. Prof. Bratica To	emel	koska, Ph.D			
9.	Requireme Course	nts for enrollment the	No					
10.	Purposes of	f the curriculum (compete	encies):					
	Students are introduced to the types of welding, technologies and their application							

	T								
11.	Conte	nt of the course program:							
		uction to Welding Technolo							
		lding; resistance welding, S ip welding, brazing, solderii	•		•		• •		
	compo	composites, ceramic materials and plastics; Welding other metal materials. Structure and							
		ties of metals. Structure of nent of the base fabric and v			•		•		
40			weiueu	Juin		eiueu			
12.		ng methods:							
	Theory	y, practical teaching and au	ditory e	exer	cises				
13.	Total a	available time			156 hours				
14.	Distrib	oution of available time			2+2+1				
15.		of teaching / learning	15.1.		ectures / theoretical -		2		
	activities				ontact teaching,				
				е	e-teaching				
					heoretical and practic	al	2		
					xercises,				
				e-exams, preparation of independent seminar work					
4.0	0.1		16.4		<u> </u>	VOIK			
16.	Other	forms of activities	16.1.	P	Project tasks				
			16.2.	Ir	ndividual tasks		1		
			16.3.	Н	Iome learning				
17.	Metho	od of assessment							
	17.1.	Tests / oral exams				70 p	oints		
	17.2.	Seminars (paper / projec	ct - pres	ent	ation: written	10 p	oints		
		and/or oral)							
	17.3. Activity and participation					20 pc	oints		
18.	Assess	ment Criteria (points / sco	re)	up 5	50 points	5(five	e) (F)		
				51 to 60 points		6(six) (E)			
				61 t	1 to 70 points 7 (see		ven) (D)		
				71 t	to 80 points	8 (eig	ght) (C)		
	1		J			ı			

81 to 90 points

91 to 100 points

9 (nine) (B)

10 (ten) (A)

19.	Signature requirement and passing the final exam	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions
20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality of teaching	Self-evaluation

22.	Litera	iterature										
		Required literature										
		Order No.	Author	Title	Publisher	Year						
	22.1	1.	B.Temelkoska	Merging materials- textbook	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering - Vinica	2010						
		 3. 										
		Additional literature										
	22.2	Order No.	Author	Title	Publisher	Year						
	22.2	1.										
		2.										
		3.										

Anr	nex No.3	Program of the Course - fi	rst cycle studies
1.	1. Title of the Course		Hydraulic machinery and components

2.	Code	2M	F101512					
3.	Study Program	Pro	duction Engine	ering				
4.	Organizer of the study program (unit or institute, Faculty, department)		University "Goce Delcev" - Stip Faculty of Mechanical Engineering-Vinica					
5.	Cycle (first, second and third cycle	e) firs	t cycle					
6.	Academic year / semester	IV/	IV/VII semester 7. Number of credits					
8.	Professor (s)	Ass	i. Prof. Radomir	Cvet	anoski, Ph.[D	1	
9.	Requirements for enrollment the Course	No						
10.	Purposes of the curriculum (competencies): Introduction to hydraulic machines and components, their characteristics, construction, and manner of application.							
11.	Content of the course program:							
	1.Working fluids and their character hydraulic motors; Vane and radial and hydraulic motors. Low-speed I valves; Hydraulic distributors; flow accumulators and filters; Additional connecting and bonding. Hydraulic 2. Examples of systems with hydraworking fluid operation on the hydraulic alculation and selection of pump; cylinder; Construction and applicate application of deployed valves; Calhydraulic accumulator system; Calhydraulic systems; Performance of	piston punydraulicy regulator regulator all equipments all equipme	mmps and hydra motors; Hydran ors. Proportiona nent and access tes; Designing on nines and comp stem; Calculation ion and celection rants and push of selection and rand design of hydran	ulic mulic cy I and ories of hyd onent on of f on of h valves manne	notors; Axia vlinders; Che servo hydra for hydraul raulic syste ts; Selection fluid compre hydraulic m s; Construct er of installa	al-priston peck and peaulics; Hydelics; Hydeli	pumps ush draulic s; Tech uence of module;	
12.	Learning methods:	1 1.1						
	Lectures with presentations through slides, exercises, independent elaboration and defense of the project task						ietense	
13.	Total available time		216 hours					
14.	Distribution of available time		3+2+2/ per v	veek				
15.	Forms of teaching / learning activities	15.1.	lectures / theo contact teaching e-teaching		al - 3	3		

			15.2.	theoretical and practice exercises, e-exams, preparation of independent seminar v	of	2	
16.	Other	forms of activities	16.1.	Project tasks		1 hours	
			16.2.	Individual tasks		1 hours	
			16.3.	Home learning		hours	
17.	Metho	od of assessment	4				
	17.1.	Tests / oral exams			70 p	oints	
	17.2.	Seminars (paper / project and/or oral)	ct - prese	entation: written	10 p	oints	
	17.3.	Activity and participation	1		20 pc	oints	
18.	Assess	ment Criteria (points / sco	ore) (up 50 points	5(five	e) (F)	
			5	51 to 60 points	6(six)	(E)	
			•	61 to 70 points	7 (se	ven) (D)	
			7	71 to 80 points	8 (eig	ght) (C)	
			8	81 to 90 points	9 (nir	ne) (B)	
			9	91 to 100 points	10 (te	en) (A)	
19.	Signature requirement and passing			60% success from all pre-exma activities i.e. 42			
	the final exam			points from two mid-term attendance of lectures and		• • •	
20.	Langua	age of teaching / study	ſ	Macedonian language			
21.	Metho teachi	od of monitoring the qualit ng	y of S	Self-evaluation			

22.	Literatu					
		Requi	red literature			
		No.	Author	Title	Publisher	Year
	22.1.	1.	Zvonimir Kostic	Hydraulic machinery and equipment-script	Mechanical Engineering - Skopje	
		2.				
		3.				

	Addit	Additional literature								
	No.	Author	Title	Publisher	Year					
22.2.	1.	John Cundiff	Fluid Power Circuits and Controls	CRC Press	2002					
	2.									
	3.									

Ann	ex No.3						
		Program of the Course - f	irst cycle studies				
1.	Title of th	e Course	Heating, air conditi	ionin	g and heat systems	.	
2.	Code		2MF101612				
3.	Study Program		Production Enginee	ring			
4.	_	of the study program	University "Goce De	elcev'	" - Stip		
	(unit or in departme	stitute, Faculty, nt)	Faculty of Mechanic	cal Er	ngineering-Vinica		
5.	Cycle (first, second and third cycle)		first cycle studies				
6.	Academic	year / semester	IV/VII semester	7.	Number of credits	8	
8.	Professor	(s)	Assi. Prof. Radomir Cvetanoski, Ph.D				
9.	Requirem Course	ents for enrollment the	No				
10.	· -	of the curriculum (compete of heating and air condition	• •	d basi	c design principles	of the	
11.	Content o	f the course program:					
	Cla Pip	roductory lecture. Bases of one signification of heating system is network and heating elementing. Air heaters and ventiles	ms.Local heating.Centi ments.Systems. Water	ral he heat	eating devices. Kettl		

12.	Learning methods: Lectures with presentations through slides, exercises, independent elaboration and defense of the project task						
13.	Total a	vailable time	216 hours				
14.	Distrib	ution of available time			3+2+2 / per week		
15.	Forms of teaching / learning activities 15.		15.1	C	ectures / theoretical - ontact teaching, -teaching		3
			15.2	e	neoretical and practical xercises, -exams, preparation of ordependent seminar wo	:	2
16.	Other	forms of activities	16.1	. Р	roject tasks		1 hours
			16.2	. Ir	ndividual tasks		1 hours
			16.3	. Н	ome learning		hours
17.	Metho	d of assessment					
	17.1.	Tests / oral exams				70 p	oints
	17.2.	Seminars (paper / project and/or oral)	ct - pre	senta	ntion: written	10 pc	oints
	17.3.	Activity and participation	1			20 pc	pints
18.	Assess	ment Criteria (points / sco	re)	up 5	60 points	5(five	e) (F)
				51 t	o 60 points	6(six)	(E)
				61 t	o 70 points	7 (sev	ven) (D)
				71 t	o 80 points	8 (eig	tht) (C)
				81 t	o 90 points	9 (nir	ne) (B)
				91 t	o 100 points	10 (te	en) (A)
19.	_	ure requirement and passi	ng		success from all pre-ex		
	tne fin	al exam		•	nts from two mid-term on the standard of lectures and		• • •
20.	Langua	age of teaching / study		Mad	cedonian language		
21.	Metho teachi	d of monitoring the qualit	y of	Self	-evaluation		

	Required literature									
	No. Author 1. S. Armenski		Title	Publisher	Year 1995					
22.1.			Termotehnick machinery and equipment	UKIM						
	2.									
	3.									
	Additional literature									
	No.	Author	Title	Publisher	Year					
22.2.	1.	S.J.Zrnic	Heating and Air Conditioning	Beograd	1978					
	2.	M. Radonic	Heating and ventilation	Beograd	1976					
	3.									

Ann	ex No.3	
	Program of the Course	- first cycle studies
1.	Title of the Course	Basics of automatic control
2.	Code	2MF101712
3.	Study Program	Production Engineering
4.	Organizer of the study program	University Goce Delcev -Stip
	(unit or institute, Faculty, department)	Faculty of Mechanical engineering, Vinica
		Department of Production Engineering
5.	Cycle (first, second and third cycle)	First cycle
6.	Academic year / semester	fourth/seventh 7. Number of 6 credits
8.	Professor (s)	Assi. Prof. Saso Gelev, Ph.D.
9.	Requirements for enrollment the Course	No
10.	Purposes of the curriculum (compe Automation and Automatic Control	•

11.	Autom Lineari 6.Preso of the 10.Ana system system	ent of the course program atic Control 2.Mathematic zation 4.Laplace transforms entation of systems with bluerror. Sensitivity of the systems of linear systems with as 11. Synthesis of linear systems with Bode method. In methods: es, e-learning, individual and	cal mod ation a ock dia tems 9. metho stems u	dels of the dels o	of physical systems 3.Ti is application 5.Stability ns 7.Reviewing of speci alysis of linear systems of traces of roots. Analys is the method of traces of	ime tu	rnout. stems imples 8.Constant lykvist method econd-order
13.	Total a	vailable time			156		
14.	Distrib	ution of available time			2+2+1 / per week		
15.				_		2	
			15.2.	e: e-	neoretical and practica xercises, -exams, preparation of ndependent seminar w	F	2
16.	Other	forms of activities	16.1. 16.2.		roject tasks		1
			16.2.		lome learning		1
17.	Metho	d of assessment					
	17.1.	Tests / oral exams				70 p	points
	17.2.	Seminars (paper / projectoral)	t - pres	senta	ation: written and/or	10 p	oints
	17.3.	Activity and participation	l			20 pc	oints
18.	Assess	ment Criteria (points / sco	re)	up 5	60 points	5(five	e) (F)
				51 t	o 60 points	6(six) (E)
				61 t	o 70 points	7 (se	ven) (D)
				71 t	o 80 points	8 (eig	ght) (C)
				81 t	o 90 points	9 (nii	ne) (B)
				91 t	o 100 points	10 (t	en) (A)

19.	Signature requirement and passing the final exam	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions
20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality of teaching	Self-evaluation

	Requi	red literature						
	No.	Author	Title	Publisher	Year			
22.1.	1.	Panoski S.	Automatic Control Systems	Uni."Sv. Kliment Ohridski" Bitola	2008			
	2.							
	Additional literature							
	No.	Author	Title	Publisher	Year			
22.2.	1.	V.Bulat, Z.Gavric	Automatic control	Faculty of Mechanical Engineering Belgrade	1981			

Anr	ex No.3	Program of the Course -	first cycle studies			
1.	Title of th	ne Course	Design of technolo	gical	processes	
2.	Code		2MF102712	2MF102712		
3.	Study Pro	ogram	Production Engineering			
4.	_	r of the study program nstitute, Faculty, ent)	Faculty of Mechani	University Goce Delcev-Stip Faculty of Mechanical Engineering - Vinica Department of Production Engineering		
5.	Cycle (fire	st, second and third cycle)	First cycle			
6.	Academi	c year / semester	Fourth/ Seventh semester	7.	Number of credits	4
8.	Professor	r (s)	Assi. Prof. Slavco Cv	vetko	v,Ph.D	

	P. Requirements for enrollment the 1.Processing using cutting and plastic deformation								
	Course	2.1	∕letalcuttinį	g machines and	devices and				
		3.1	.Machines and tools for plastic deformation						
10.	Purposes of the curriculum (comp	etencie	s):						
	Training for designing technologic	al proce	sses for pro	cessing metals	s using grinding				
11.	Content of the course program:								
	Basics ofdesign of technological pr construction, forms of production production.		· · · · · ·						
	Design of the TP: designing and de designing the TP.	esigner´s	tasks, basic	cases, principl	es and methods for				
	Conventional designing of the TP: designing of separate TP, content of the project, the technological analysis of the technical drawing and construction, starting material, drawing of starting materials, supplements and methods for defining them, choosing technological bases, defining the order of operations, designing the TP and control of quality, designing TP by types and groups.								
	Automatic designing of the TP. Basics of automatic designing, systems and design of TP, mathematical models, technological unification, the iteration methods for designing the TP. Techno-economic assessment of the TP: Time needed for the execution of the process, time funds, defining the necessary number of processed systems (OS) and the number of workers, designing scheme for the preparation of the OS.								
	Technological documentation.	e prepara	tion of the						
12.		prepara	ition of the						
12.	Technological documentation.			OS.					
12. 13.	Technological documentation. Learning methods:			OS. nome learning,					
	Technological documentation. Learning methods: Lectures, exercises, individual wor		tal classes, l	OS. nome learning,					
13.	Technological documentation. Learning methods: Lectures, exercises, individual wor Total available time		120 hou 2+1+1 / lectures / contact te	nome learning, irs reper week theoretical - aching,					
13. 14.	Technological documentation. Learning methods: Lectures, exercises, individual wor Total available time Distribution of available time Forms of teaching / learning	k, practi	120 hou 2+1+1 / lectures / contact te	nome learning, irs reper week theoretical - aching,	consultations. 2 hours				
13. 14.	Technological documentation. Learning methods: Lectures, exercises, individual wor Total available time Distribution of available time Forms of teaching / learning	k, practi	120 hou 2+1+1 / lectures / contact te e-teaching theoretica exercises, e-exams,	nome learning, rs refrequence per week theoretical - aching,	consultations. 2 hours 1 hours				
13. 14.	Technological documentation. Learning methods: Lectures, exercises, individual wor Total available time Distribution of available time Forms of teaching / learning	k, practi	120 hou 2+1+1 / lectures / contact te e-teaching theoretica exercises, e-exams,	os. nome learning, rs per week theoretical - aching, l and practical preparation of	consultations. 2 hours 1 hours				
13. 14. 15.	Technological documentation. Learning methods: Lectures, exercises, individual wor Total available time Distribution of available time Forms of teaching / learning activities	15.1.	lectures / contact te e-teaching theoretica exercises, independe	nome learning, rs r per week theoretical - aching, I and practical preparation of ent seminar wo	consultations. 2 hours 1 hours				

17.	Metho	od of assessment		
	17.1.	Tests / oral exams		70 points
	17.2.	Seminars (paper / project - pro and/or oral)	esentation: written	10 points
	17.3.	Activity and participation		20 points
18.	Assess	ment Criteria (points / score)	up 50 points	5(five) (F)
			51 to 60 points	6(six) (E)
			61 to 70 points	7 (seven) (D)
			71 to 80 points	8 (eight) (C)
			81 to 90 points	9 (nine) (B)
			91 to 100 points	10 (ten) (A)
19.	Signat	ure requirement and passing	60% of pre-exam activitie	s or minimum 42 points
	the fin	al exam	from 2 midterm exams, p	roject activities and
			attending of lectures and	discussions
20.	Langua	age of teaching / study	Macedonian	
21.	Metho teachi	od of monitoring the quality of ng	Self-evaluation	

22.	Literatu	ıre				
		Requi	red literature			
		No. Author		Title	Publisher	Year
		1.	Slavco Cvetkov	Design of technological	UGD-Stip	2012
	22.1.			processes	Mechanical	
					faculty-Vinica	
		2.				
		3.				
		Addit	ional literature	L		
	22.2	No.	Author	Title	Publisher	Year
	22.2.	1.	D. M. Nikolić	Design of technological	Mechanical	1997
				processes using	faculty,	
				metalcutting	Beograd	

	2.	D. M. Nikolić	Design of technological processes using metalcutting	Mechanical faculty, Beograd	1997
	3.	K. Ruškovski, D. Jovanovski	Preparation of a manufacture	Mechanical faculty, Skopje	1982

Anne	ex No.3	Program of the Course -	first cycle	studies				
1.	Title of the	Course	Programming of Computer Numerical Control (CNC) machines					
2.	Code		2MF102	812				
3.	Study Progr	ram	Production Engineering					
4.	Organizer o	f the study program (unit	Universi	ty "Goce D	elcev	"- Stip.		
	or institute	, Faculty, department)	Faculty of Mechanical Engineering -Vinica					
5.	Cycle (first,	second and third cycle)	First cyc	le				
6.	Academic y	ear / semester	fourth/	seventh	7.	Number of credits	4	
8.	Professor (s	s)	Assi. Prof. Slavco Cvetkov, Ph.D					
9.	Requirements for enrollment the Course			Attended course of:				
				-Processing using cutting and plastic deformation				
			-Metal c	utting mad	chines	s and devices		
10.	Purposes of	the curriculum (competer	ncies):					
	Programmir	ng of numerically controlled	d machine	s				
11.	Content of	the course program:						
	Introduction. Basic features of CNC machines; Technological preparation for programming; Defining the coordinated system and zero point; Processing plan, tightening and repositioning; Determining the tools and modes of processing; Defining tolerances and constraints. Design of road (movements) of executive tools; Programming, programming cycles and subprograms; Simulation of work on the machine.							
12.	Learning m	ethods:						
	Lectures, La	boratory exercises, e-learn	ing, indivi	dual and te	eam p	projects, consultations.		
13.	Total availa	ble time	120	hours				
14.	Distribution	of available time	2 +	1 +1/ per v	week			

15.	Forms activiti		ng / learning	15.1	l. lectures / theoretical contact teaching, e-teaching	-	2 hours		
				15.2	theoretical and practice exercises,	cal	1hours		
					e-exams, preparation independent seminar				
16.	Other	forms of a	activities	16.1	Project tasks				
				16.2	2. Individual tasks		1 hour		
				16.3	B. Home learning				
17.	Metho	d of asses	ssment						
	17.1.	Tests / o	oral exams			70			
	17.2.	Seminal oral)	rs (paper / projec	t - pre	sentation: written and/or	10			
	17.3.	Activity	and participation			20			
18.	Assess	ment Crit	eria (points / scor	e)	to 50 points	5(fiv	e)(F)		
					from 51 to 60 points	6(six) (E)		
					from 61 to 70 points 7 (seven) (D)				
							8 (eight) (C)		
							9 (nine) (B)		
					from 91 to 100 points	10 (t	en) (A)		
19.	_	ure requir al exam	ement and passin	ıg	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions				
20.	Langua	ge of tea	ching / study		Macedonian	uiscuss	10113		
21.			itoring the quality	of	Self-evaluation				
	teachi		tioning the quality	O.	Sen evaluation				
22.	Literat	ure							
		Require	d literature						
		No.	Author	Tit	tle	Publi	sher	Year	
	22.1.	1.	P. Bojanic,		oduction systems APT-		nanical	2010	
			R. Puzovic	lar	nguage programming	facul Beog	•		

			numerically controlled machine tools						
	2.								
	3.								
	Additional literature								
	No.	Author	Title	Publisher	Year				
	1.	Manic M	Numerically controlled	Mechanical faculty					
22.2.		Spasic D	machines	-Nis	1999				
	2.	Smid P	CNC Programing Handbook	Industrial Press	2003				
	3.								

Ann	ex No.3	Program of the Course -	first cycle studies				
1.	Title of the	Course	Modelling and simulations				
2.	Code		2MF102912				
3.	Study Progr	ram	Production Engineering				
4.	_	f the study program (unit , Faculty, department)	University "Goce Delcev" - Stip. Faculty of Mechanical Engineering - Vinica				
5.	Cycle (first,	second and third cycle)	First cycle				
6.	Academic y	ear / semester	fourth/ seventh	7.	Number of credits	4	
8.	Professor (s	s)	Assi. Prof. Simeon S	Sime	onov, Ph.D		
9.	Requirement Course	nts for enrollment the	No				
10.	Purposes of the curriculum (competencies): Students are introduced to the procedure of modelling and simulation						
11.	Content of	the course program:					

	applica	uction; Models, creating a mo ition areas; Random number ; technique of simulating;		• • • • • • • • • • • • • • • • • • • •		•		
12.		ng methods: es, Laboratory exercises, e-le	earning	g, individual and team proje	cts, co	nsultations.		
13.	Total a	vailable time		120 hours				
14.	Distrib	ution of available time		2 +1 +1/ per week				
15.	. Forms of teaching / learning activities		15.1.	lectures / theoretical - contact teaching, e-teaching		2 hours		
			15.2.	theoretical and practical exercises, e-exams, preparation or independent seminar w	f	1hours		
16.	Other forms of activities		16.1.	Project tasks				
			16.2.	Individual tasks		1 hour		
			16.3.	Home learning				
17.	Metho	d of assessment						
	17.1.	Tests / oral exams		70				
	17.2.	Seminars (paper / project oral)	- pres	entation: written and/or	10			
	17.3.	Activity and participation			20			
18.	Assess	ment Criteria (points / score	e)	to 50 points	5(five	e)(F)		
				from 51 to 60 points	6(six)) (E)		
				from 61 to 70 points	7 (se	ven) (D)		
				from 71 to 80 points	8 (eig	ght) (C)		
				from 81 to 90 points	9 (nir	ne) (B)		
				from 91 to 100 points	10 (t	en) (A)		
19.	_	ure requirement and passing al exam	_	60% of pre-exam activities or minimum 42 points from 2 midterm exams, project activities and attending of lectures and discussions				
20.	Langua	nge of teaching / study		Macedonian				

21.	Metho teachi		nitoring the quality o	of	Self-evaluation			
22.	Literat	ure						
		Requir	ed literature					
		No.	Author	Tit	tle	Publisher	Year	
		1.	S.Simeonov	lindustrial modelling		UGD -Stip	2013	
	22.1.			(peer reviewed script)				
		2.	S.Simeonov	m	mulations of processes in echanical engineering eer reviewed script)	UGD -Stip	2013	
		3.						
		Additional literature						
		No.	Author	-	Title	Publisher	Year	
	22.2.	1.	Christopher A. Chung		Simulation modelling handbook		2004	
		2.	Antic D., Donkovic B.		Modelling and simulation of dynamic systems	University in Nis		
		3.						

Ann	ex No.3	Program of the Course - fi	rst cycle studies				
1.	Title of th	e Course	Industrial Ventilation				
2.	Code		2MF103012				
3.	Study Pro	gram	Production Engine	ering			
4.	_	of the study program estitute, Faculty, ent)	University "Goce Delcev" - Stip Faculty of Mechanical Engineering-Vinica				
5.	Cycle (firs	t, second and third cycle)	First cycle				
6.	Academic	year / semester	IV/ VII semester	7.	Number of credits	4	
8.	Professor	(s)	Assistant Professor	Deja	n Mirakovski, PhD	1	
9.	Requirem Course	ents for enrollment the	Enrolled semester				

	Purposes of the curriculum (competencies):							
10.	Introduction to the ventilation systems, design, calculation and regulation of ventilation systems							
	Content of the course program:							
	1. Introduction							
	2. Ventilation Principles							
	3. Natural Ventilation							
	4. Artificial Ventilation							
5. Local ventilation systems								
11.	6. General Industrial Ventilati	on						
7. Microclimate conditions								
8. Gases in working environment								
	9. Dust in working environme	nt						
	10. Air purification systems							
	11. Dimensioning of channels							
	12. Cooling and Drying							
	Learning methods:							
	– Lectures,							
	 theoretical and pre- 	actical e	xercises,					
12.	e-teaching,							
	 seminar paper 							
	consultation							
13.	Total available time		120 hours					
14.	Distribution of available time		2+2+1					
			lectures / theoretical -					
		15.1.	contact teaching,	2				
	Forms of teaching / learning activities		e-teaching theoretical and practical					
15.	activities	15.2	exercises, e-exams,	1				
		15.2.	preparation of independent seminar work					
16.	Other forms of activities	16.1.	Project tasks					

			16.2.	Individual tasks		1
			16.3.	Home learning		
17.	Metho	od of assessment				
	17.1.	Tests / oral exams			70 p	oints
	17.2.	Seminars (paper / project and/or oral)	: - pres	esentation: written 10 points		
	17.3.	Activity and participation			20 pc	oints
18.	Assess	ment Criteria (points / scor	e)	up 50 points		e) (F)
				51 to 60 points	6(six) (E)
				61 to 70 points	7 (se	ven) (D)
			,	71 to 80 points	8 (ei	ght) (C)
				81 to 90 points	9 (niı	ne) (B)
			!	91 to 100 points	10 (t	en) (A)
19.	Signature requirement and passing the final exam			60% success of all pre-exam activities i.e. 42 points from two mid-term exams , seminar work and presence of lectures and exercises		
20.	Langua	age of teaching / study		Macedonian		
21.	0.0			Self-evaluation		

	Literati	ıre				
ľ		Requi	ired literature			
		No.	Author	Title	Publisher	Year
			Dejan Mirakovski	Authorized lectures		
	22.1.	1.	Marija Hadzi-Nikolova			
		2.	Howard D. Goodfellow	Industrial Ventilation Design Guidebook	University of Toronto, Canada	2002
		3.				
f	22.2.	Addit	ional literature			1

	No.				
	1.	Howard D. Goodfellow Enco Tähti	Industrial Ventilation	University of Toronto, Canada	
	2.				
	3.				

Ann	ex No.3	Program of the Course - fir	st cycle studies			
1.	Title of th	e Course	Quality manageme	ent		
2.	Code		2MF106612			
3.	Study Pro	gram	Production Engine	ering	/	
			Transport, Organiz	ation	and Logistics	
4.	Organizer	of the study program (unit	University "Goce D	elcev	v" - Stip	
	or institut	e, Faculty, department)	Faculty of Mechan	ical E	ngineering-Vinica	
5.	Cycle (firs	t, second and third cycle)	1 st cycle			
6.	Academic	year / semester	4 th / 3 rd	7.	Number of credits	6
8.	Professor	(s)	Professor Mikolaj Kuzinovski, PhD			
9.	Requirem Course	ents for enrollment the	none			
10.	Purposes of the curriculum (competencies): Quality management in the modern organization. Customer loyalty. Creating a competitive market organizations. Role, importance and implementation of the ISO 9001 family of standards.					
11.	Content o	f the course program:				
		Introduction to quality management (quality as a strategic goal and utility organizations for competitiveness).				

2. Quality management system (general requirements relatied to the ISO 9001:2008 Quality Management System). 3. Management resposibility (item 5 of the standard ISO 9001:2008). 4. Resource management (item 6 of the standard ISO 9001:2008). 5. Production (item 7.1, 7.2 and 7.3 of the standard ISO 9001:2008). 6. Realization of the product (see section 7.4, 7.5 and 7.6 of the standard ISO 9001:2008). 7. Measurement, analysis and improvement (item 8 of the standard ISO 9001:2008). 8. Introducing the standard ISO 17025, competence of testing and calibration laboratories. 9. Introduction to ISO 27001, Information Security Management Systems. 10. Introduction to ISO 14001, Environmental Management. 11. Introducing the standard OHSAS 18001 health and safety management. 12. Introduction to ISO 22000 Food Safety Management System. 12. **Learning methods:** Lecturing, exercises Total available time 156 **13**. Distribution of available time 2+2+1 / per week 14. **15**. Forms of teaching / learning 15.1. lectures / theoretical -2 activities contact teaching, e-teaching 15.2. theoretical and practical 2 exercises, e-exams, preparation of independent seminar work Other forms of studying **Project tasks** 16. 16.1. hours activities Individual tasks 16.2. 1 hours 16.3. **Home learning** hours 17. Method of assessment 17.1. Tests / oral exams 70 points **17.2**. Seminars (paper / project - presentation: written 10 points and/or oral)

	17.3.	Activity and participation		20 points		
18.	3. Assessment Criteria (points / score)		up 50 points	5(five) (F)		
			51 to 60 points	6(six) (E)		
			61 to 70 points	7 (seven) (D)		
			71 to 80 points	8 (eight) (C)		
			81 to 90 points	9 (nine) (B)		
			91 to 100 points	10 (ten) (A)		
19.	Signat	ure requirement and passing	60% of pre-exam activities	es or minimum 42 points		
	the fin	al exam	from 2 midterm exams, p	project activities and		
			attending of lectures and	discussions		
20.	Langua	age of teaching / study	Macedonian			
21.	Metho teachi	nd of monitoring the quality of ng	Self-evaluation			

	Requ	ired literature			
	No.	Author	Title	Publisher	Year
	1.	Standardization institute of RM	ISO 17025, ISO 27001, ISO 14001, ISO 22000, ISO 18001	ISRM	
22.1.	2.	Standardization institute of RM	Quality Management Systems – Requests (Identical to EN ISO 9001:2008)	ISRM	2010
	3.	Prof. d-r. Sc. Hrvoje Skoko	Upravljanje kvalitetotm	Sinergija, Zagreb	2000
	4.	David Hoyle	Quality Systems Handbook (4th edition)	Butterworth- Heinemann, A member of the Reed Elsevier plc group	2001
	Addit	ional literature		•	
22.2.	No.	Author	Title	Publisher	Year

	1.		
	2.		
	3.		

	ex No.3 Program of the Course -	first cycle studies		
1.	Title of the Course	Occupational Safety and Health		
2.	Code	2FP123212		
3.	Study Program	Production engineering		
4.	Organizer of the study program	University "Goce Delcev" - Stip		
	(unit or institute, Faculty, department)	Faculty of Mechanical Engineering-Vinica		
5.	Cycle (first, second and third cycle)	First cycle		
6.	Academic year / semester	IV VIII semester 7. Number of credits 6		
8.	Professor (s)	Assistant Professor Dejan Mirakovski, PhD		
9.	Requirements for enrollment the Course	Enrolled semester		
10.	Purposes of the curriculum (compe	visions of the Occupational Safety and Health Law,		
10.	Purposes of the curriculum (compe	visions of the Occupational Safety and Health Law,		
	Purposes of the curriculum (compe Introducing to the fundamental pro hazards and risks on the workplace	visions of the Occupational Safety and Health Law,		
	Purposes of the curriculum (competent of the fundamental problem) hazards and risks on the workplace Content of the course program: 1. Introduction	visions of the Occupational Safety and Health Law,		
	Purposes of the curriculum (competent of the fundamental problem) hazards and risks on the workplace Content of the course program: 1. Introduction	cupational Safety and Health Law,		
	Purposes of the curriculum (competent of the fundamental problem hazards and risks on the workplace Content of the course program: 1. Introduction 2. Legislation in the field of October 1.	cupational Safety and Health Law, Cupational Safety and Health Organization		
	Purposes of the curriculum (compellation in the field of Oct. 1. Introduction 2. Legislation in the field of Oct. 3. Role of International Labour	cupational Safety and Health Law, Cupational Safety and Health Organization		
	Purposes of the curriculum (compellation of the fundamental prochazards and risks on the workplace) Content of the course program: 1. Introduction 2. Legislation in the field of Occupational Labour 4. Occupational Risk Assessme 5. Ergonomics	cupational Safety and Health Law, Cupational Safety and Health Organization		
	Purposes of the curriculum (compellation of the fundamental prochazards and risks on the workplace) Content of the course program: 1. Introduction 2. Legislation in the field of Occupational Labour 4. Occupational Risk Assessme 5. Ergonomics	cupational Safety and Health Law, Cupational Safety and Health Organization Int Cactors for injuries and occupational diseases		
	Purposes of the curriculum (compellation in the field of Occupational Risk Assessments of Injuries at work, etiological for T. Gasses in working environm	cupational Safety and Health Law, Cupational Safety and Health Organization Int Cactors for injuries and occupational diseases		
	Purposes of the curriculum (compellation in the field of Occ. 1. Introduction 2. Legislation in the field of Occ. 3. Role of International Labour 4. Occupational Risk Assessme 5. Ergonomics 6. Injuries at work, etiological for Gasses in working environm 8. Dust and measurement met	cupational Safety and Health Law, Cupational Safety and Health Organization nt Factors for injuries and occupational diseases ent		

	11. Microclimate conditions, noise and vibrations in working environment							
	12. Personal Protective Equ	iipment, F	Rescu	ie services and plans fo	or defe	ense and rescue		
12.	Learning methods:							
	Lectures,							
	 theoretical and 	d practica	l exe	rcises,				
	e-teaching,							
	seminar work							
	consultation							
13.	Total available time			120 hours				
14.	Distribution of available time			2+1+1				
		15.1		ectures / theoretical -		2		
				ontact teaching, e- eaching				
15.	Forms of teaching / learning activities	15.2	. t	heoretical and practic	al			
	activities		exercises, e-exams,		dont	1		
				preparation of independent seminar work				
16.	Other forms of activities	16.1	. Project tasks					
		16.2	. Individual tasks		1			
		16.3	Home learning					
17.	Method of assessment	<u> </u>						
	17.1. Tests / oral exams				70 p	oints		
	17.2. Seminars (paper / pro and/or oral)	ject - pre	senta	ation: written	10 p	oints		
	17.3. Activity and participati	ion			20 pc	oints		
18.	Assessment Criteria (points / s	score)	up 5	50 points	5(five	e) (F)		
			51 t	o 60 points	6(six)) (E)		
			61 t	o 70 points	7 (se	ven) (D)		
			71 t	o 80 points	8 (eig	ght) (C)		
			81 t	o 90 points	9 (nir	ne) (B)		
			91 t	o 100 points	10 (te	en) (A)		

19.	Signature requirement and passing the final exam	60% success of all pre-exam activities i.e. 42 points from two mid-term exams , seminar work and presence on lectures and exercises
20.	Language of teaching / study	Macedonian
21.	Method of monitoring the quality of teaching	Self-evaluation

. Literature										
	Requi	Required literature								
	No.	Author	Title	Publisher	Year					
22.1.	1.	Dejan Mirakovski Marija Hadzi-Nikolova	Occupational Safety and Health ISBN 978-608-4504-98-6	University Goce Delcev	2012					
	2.									
	3.									
	Addit	Additional literature								
	No.	Author	Title	Publisher	Year					
22.2.	1.	Bengamin O Ali	Fundamentals principles of Occupatinal Safety and Health	International Labour Office Geneva	2011					
	2.									
	3.									

Ann	ex No.3	Program of the Course -	urse - first cycle studies			
1.	Title of the	Course	Computer Aided Manufacturing (CAM)			
2.	Code		2MF103112			
3.	Study Progr	am	Production Engineering			
4.	_	f the study program (unit , Faculty, department)	University "Goce Delcev"- Stip. Faculty of Mechanical Engineering -Vinica			

5.	Cycle (1	first, second and third cycle)	Firs	st cycle					
6.	Acader	mic year / semester	fou	ırth/ eighth	7.	Number	of credits	4	
8.	Profess	sor (s)	Ass	si. Prof. Simeon S	Simed	nov, Ph.D			
9.	_	ements for enrollment the	Att	Attended course of:					
	Course		-CA	-CAD technology					
			-Pr	ogramming Num	nerica	ally control	lled machine	es (CNC)	
10.	Purpos	es of the curriculum (compet	encies):						
	Students are introduced to making programs for management of manufacturing process, especifically with CNC machines							SS,	
11.	Conten	t of the course program:							
	Introduction; CAM basic knowledge; Geometric elements; Milling components; Modelling; Final operations; Turning; Processes of wire erosion.							ing; Final	
12.	Learnir	ng methods:							
	Lecture	es, Laboratory exercises, e-lea	rning, i	ndividual and te	am p	rojects, co	nsultations.		
13.	Total a	vailable time		120 hours	120 hours				
14.	Distrib	ution of available time		2 +1 +1/ per w	veek				
15.	Forms activiti	J. J	15.1.	lectures / theo contact teachi e-teaching		al -	2 hours		
			15.2.	theoretical and practical exercises,			1hours		
			e-exams, preparation of independent seminar work						
16.	Other f	forms of activities	16.1.	Project tasks					
			16.2.	Individual task	(S		1 hour		
			16.3.	Home learning	3				
17.	Metho	d of assessment		1			ı		
	17.1.	Tests / oral exams				70			
	17.2.	Seminars (paper / project - oral)	presei	ntation: written	and/	or 10			
	17.3.	Activity and participation				20			

18.	Assess	ment Crite	ria (points / score)		to 50 points	5(five)(F)	
					from 51 to 60 points	6(six) (E)	
					from 61 to 70 points	7 (seven) (D)	
					from 71 to 80 points	8 (eight) (C)	
					from 81 to 90 points	9 (nine) (B)	
					from 91 to 100 points	10 (ten) (A)	
19.	_	-	ment and passing		60% of pre-exma activitie	s or minimum 42 poi	nts
	the fin	the final exam			from 2 midterm exams, p		
					attending of lectures and	discussions	
20.	Language of teaching / study				Macedonian		
21.			oring the quality of	f	Self-evaluation		
	teachi						
22.	Literat	ure					
		Required literature					
		No.	Author	Tit	le	Publisher	Year
		1.	O. Karavasilev,	Fe	ature Cam (translation)	Delcam USA	2009
	22.1.		K.Vasilev, I.Atanasov			Технологика-	
	22.1.		1.AtdildSUV			ДиТра-Скопје	
		2.					
		3.					
		Addition	 al literature				
				Τ,	r:alo	Dublishon	Vasii
		No.	Author		Fitle	Publisher	Year
	22.2.	1.	G.Devedzik	(CAD/CAM technology	Mechanical faculty	2004
						Kraguevac	
		2.					
		3.					
	l	1	I				l

Annex No.3	
	Program of the Course - first/second/third cycle studies

1.	Title of the Course	Ene	ergy Efficiency					
2.	Code	2M	2MF103212					
3.	Study Program	Production Engineering						
4.	Organizer of the study program	Uni	iversity "Goce De	elcev'	'- Stip			
	(unit or institute, Faculty, department)	Faculty of Mechanical Engineering -Vinica						
5.	Cycle (first, second and third cycle)	First cycle						
6.	Academic year / semester	4 y	ear / semester	7.	Number credits	r of ECTS	4	
8.	Professor (s)	Ass	s. Prof. Bratica Te	melk	oska, PhD)		
9.	Requirements for enrollment the Course	No						
10.	Purposes of the curriculum (compete	encies	s):					
	lintroduction to types of energy, ener management of energy efficiency.	gy ef	ficiency, energy (efficie	ency mode	elling and		
11.		gy ef	ficiency, energy (efficie	ency mode	elling and		
11.	management of energy efficiency.	sizes;	energy conserva	tion;	energy so	ources; Ene		
11.	management of energy efficiency. Content of the course program: 1. Energy: Forms, features and s	izes; Ener Ener Ener al ene	energy conserva gy Efficiency; End gy efficiency in the ergy sources and	tion; ergy E nerma facilit	energy so Efficiency i al power p ties; Energ	ources; Ene in Buildings plants; Ene gy efficienc	rgy y in	
	management of energy efficiency. Content of the course program: 1. Energy: Forms, features and s	izes; Ener Ener Ener al ene	energy conserva gy Efficiency; End gy efficiency in the ergy sources and	tion; ergy E nerma facilit	energy so Efficiency i al power p ties; Energ	ources; Ene in Buildings plants; Ene gy efficienc	rgy y in	
	Content of the course program: 1. Energy: Forms, features and search of the course program: 2. Energy efficiency in industry; efficiency of non-conventional transport; Modelling and ana	sizes; Energ Energ al ene lysis d	energy conserva gy Efficiency; Ene gy efficiency in th ergy sources and of energy efficier	tion; ergy E nerma facilit nt sys	energy so Efficiency i al power p ties; Energ tems; Ene	ources; Ene in Buildings plants; Ene gy efficienc ergy Manag	rgy y in ement.	
112.	management of energy efficiency. Content of the course program: 1. Energy: Forms, features and senergy Saving; In general for 2. Energy efficiency in industry; efficiency of non-conventional transport; Modelling and ana transport; Modelling and ana Learning methods: Lectures with slide presentations, exceptions.	sizes; Energ Energ al ene lysis d	energy conserva gy Efficiency; Ene gy efficiency in th ergy sources and of energy efficier	tion; ergy E nerma facilit nt sys	energy so Efficiency i al power p ties; Energ tems; Ene	ources; Ene in Buildings plants; Ene gy efficienc ergy Manag	rgy y in ement.	
112.	management of energy efficiency. Content of the course program: 1. Energy: Forms, features and senergy Saving; In general for 2. Energy efficiency in industry; efficiency of non-conventional transport; Modelling and ana transport; Modelling ana transport; Modellin	sizes; Energ Energ al ene lysis d	energy conserva gy Efficiency; Ene gy efficiency in the ergy sources and of energy efficier	tion; ergy E nerma facilit nt sys	energy so Efficiency i al power p ties; Energ tems; Ene	ources; Ene in Buildings plants; Ene gy efficienc ergy Manag	rgy y in ement.	
11. 12. 13. 14.	Content of the course program: 1. Energy: Forms, features and search of the course program: 1. Energy: Forms, features and search of the course program: 2. Energy efficiency in industry; efficiency of non-conventional transport; Modelling and ana transport; Modelling and ana transport task Lectures with slide presentations, exercise task Total available time Distribution of available time	sizes; Energ Energ al ene lysis d	energy conserva gy Efficiency; Ene gy efficiency in the ergy sources and of energy efficier es, independent of	ergy Enerma facilit nt sys	energy so Efficiency i al power p cies; Energ tems; Ene	ources; Ene in Buildings plants; Ene gy efficienc ergy Manag	rgy y in ement.	
12. 13.	Content of the course program: 1. Energy: Forms, features and senergy Saving; In general for 2. Energy efficiency in industry; efficiency of non-conventional transport; Modelling and ana transport; Modelling and ana transport task Lectures with slide presentations, exproject task Total available time Distribution of available time Forms of teaching / learning	sizes; Energ Energ Il ene Ilysis (energy conserva gy Efficiency; Energy gy efficiency in the ergy sources and of energy efficien es, independent of 120 hours 2+1+1 lectures / theory	ergy Enerma facilit nt sys	energy so Efficiency i al power p cies; Energ tems; Ene	ources; Ene in Buildings plants; Ene gy efficienc ergy Manag	rgy y in ement.	

				e-exams, preparation independent seminar				
16.	Other	forms of activities	16.1.	Project tasks				
			16.2.	Individual tasks		1		
			16.3.	Home learning				
17.	Metho	od of assessment						
	17.1.	Tests / oral exams			70pc	oints		
	17.2.	Seminars (paper / project and/or oral)	t - pres	sentation: written	10pc	oints		
	17.3.	17.3. Activity and participation				20points		
18.	Assess	ment Criteria (points / sco	re)	up 50 points	5	(five)	(F)	
				51 to 60 points	6	(six)	(E)	
				61 to 70 points	7	(seven)	(D)	
				71 to 80 points	8	(eight)	(C)	
				81 to 90 points	9	(nine)	(B)	
				91 to 100 points	10	(ten)	(A)	
19.	Signature requirement and passing the final exam			60% success from all activities before exam i.e. 42 points from two mid-term exams, seminar paper, attendance of lectures and exercises				
20.	Langu	age of teaching / study		Macedonian				
21.	Metho teachi	od of monitoring the quality	y of	Self-evaluation				

22.	Litera	ture				
		Require	d literature			
	22.1	Order	Author	Title	Publisher	Year
		No.				
		1.	D.Tashevski	energy Efficiency	Draft	2010
		2.				
		3.				
	22.2	Additio	nal literature		I	I

	Order	Author	Title	Publisher	Year
	No.				
	1.	ENSI	Energy Efficiency in Buildings	ENSI- Norway	2006
	2.	D.R. Wulfinghoff	Energy efficiency	energy institute	1999
	3.				