MINISTRY OF NATIONAL EDUCATION

UNIVERSITY OF PETROŞANI
FACULTY OF MECHANICAL AND ELECTRICAL ENGINEERING

CURRICULUM

începând cu anul universitar *2018 - 2019*

Programul de studii de licenţă	**MINING MACHINES AND EQUIPMENT**
Domeniul fundamental	**ENGINEERING**
Domeniul de licenţă	**MECHANICAL ENGINEERING**
Durata studiilor:	**4 YEARS**
Forma de învăţământ:	**FULL TIME (FT)**

TRAINING OBJECTIVES AND COMPETENCES

The general objective of the training programme: to create specialists in the design and management of mining technological processes, the exploitation and maintenance of the machines and equipment used in the mining industry, able to work in research, design and production.

The specific objectives of the training programme: to teach knowledge and to create the abilities which are necessary for the acquisition of the following competences:

Professional competences:

C1. To apply the fundamental theoretical and practical engineering knowledge in order to make calculations, demonstrations and applications, the use of software in activities in the field of Mechanical engineering.

C2. The ability to understand and assimilate the principles, theories, basic methods for calculations, demonstrations and applications characteristic of the fundamental disciplines.

C3. The ability to identify and describe the general and specific operation conditions for the mining machines and equipment and to define the main difficulties in their selection, set up, adjustment and exploitation..

C4. The ability to check the set up and operation manner of the mining machines and equipment in order to determine their quality according to current regulations.

C5. To apply basic principles and methods characteristic of mechanical engineering to solve specific design problems of the elements or parts of the machines, installations and equipment in the mining industry.

C6. To elaborate the technical and economic documentation regarding the organization and management of the operations of set up, adjustment and exploitation of the machines, installations and equipment in the mining industry.

Transversal competences:

CT1 – To apply the values and ethics of the profession of engineer and to fulfill the professional tasks responsibly under the circumstances of diminished autonomy and qualified assistance. To promote the convergent and divergent logical experiment, the practical applicability, the assessment and self-assessment in making decisions. *To fulfill the professional tasks responsibly.*

CT2 – To perform the activities and the roles characteristic of team work on different hierarchical layers. To promote initiative, dialogue, cooperation, positive attitude and respect, diversity and multiculturalism and to continuously improve the activity. *Communication and team work*.

CT3 – To self-assess the need for professional training objectively in order to integrate on the labour market and to adapt to the dynamics of its requirements and to achieve personal and professional development. The efficient use of the language abilities and the knowledge of the information and communication technology. *Awareness of the long-life training for professional development.*

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No.	FIRST YEAR	Courses code	Course type	Semester 1				Semester 2				Credit points		Ei, Ci, Vi		No. of hours per discipline			Hours for individual study	Total of hours
	Courses			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Class	Apl.	Total		
1	Mathematical analysis	2MM1OF01	F	2	2							5		E1		28	28	56	69	125
2	Chemistry	2MM1OF02	F	2		2						3		C1		28	28	56	19	75
3	Descriptive geometry	2MM1OF03	F	1		2						3		C1		14	28	42	33	75
4	Applied Informatics I	2MM1OF04	F	2		3						6		E1		28	42	70	80	150
5	Materials science and engineering	2MM1OD05	D	2		2						5		E1		28	28	56	69	125
6	Mechanics I	2MM1OD06	D	2	2							5		E1		28	28	56	69	125
7	English language I	2MM1AX07	X		2							2		C1		0	28	28	22	50
8	Physical education and sport I	2MM1OX08	X		2							1		A/R		0	28	28	0	28
9	Algebra, analytical and differential geom.	2MM2OF09	F					2	2				4		E2	28	28	56	44	100
10	Physics	2MM2OF10	F					2		2			3		C2	28	28	56	19	75
11	Technical Drawing	2MM2OF11	F					2		2			4		C2	28	28	56	69	125
12	Applied Informatics II	2MM2OF12	F					2		2			5		E2	28	28	56	69	125
13	Mechanics II	2MM2OD13	D					2	1	1			5		E2	28	28	56	69	125
14	Materials technology	2MM2OD14	D					2		2			5		E2	28	28	56	44	100
15	Optional course 11 (foreign lang.)	2MM2AX15	X						2				3		C2	0	28	28	47	75
16	Physical education and sport II	2MM2OX16	X						2				1		A/R	0	28	28	0	28
TOTAL FIRST YEAR				**11**	**8**	**9**	**0**	**12**	**7**	**9**	**0**	**30**	**30**	**8E+6C**		**322**	**462**	**784**	**722**	**1506**
												60								

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No.	SECOND YEAR	Courses code	Course type	Semester 1				Semester 2				Credit points		Ei, Ci, Vi		No. of hours per discipline			Hours for individual study	Total of hours
	Courses			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Class	Apl.	Total		
17	Thermotechnics and thermal machines	2MM3OD17	D	2		2						4		E3		28	28	56	44	100
18	Strength of Materials I	2MM3OD18	D	3	2							5		E3		42	28	70	55	125
19	Mechanisms	2MM3OD19	D	2		2	1					6		E3		28	42	70	80	150
20	Infographics (CAD) I	2MM3OF20	F	2		2						5		E3		28	28	56	69	125
21	Optional course OP 22	2MM4AF21	F	2	2							4		C3		28	28	56	44	100
22	History of Technology and Science	2MM3OX22	X	2	1							3		C3		28	14	42	33	75
23	Optional course 21 (foreign lang. 3)	2MM3AX23	X		2							2		C3		0	28	28	47	75
24	Physical education and sport III	2MM3OX24	X		1							1		A/R		0	14	14	0	14
25	Management	2MM3OD25	D					2	2				3		C4	28	28	56	19	75
26	Machine parts I	2MM4OD26	D					2		2			4		E4	28	28	56	44	100
27	Infographics (CAD) II	2MM4OF27	F					1		2			4		E4	14	28	42	58	100
28	Strength of Materials II	2MM4OD28	D					2	2	1			4		E4	28	42	70	30	100
29	Tolerance and dimension control	2MM4OD29	D					2		2			3		C4	28	28	56	19	75
30	Mechanical vibrations	2MM4OD30	D					2		1			3		C4	28	14	42	33	75
31	Optional course 23 (foreign lang. 3)	2MM4AX31	X						2				2		C4	0	28	28	22	50
32	Optional course OP 24	2MM4AX32	X					1	1				2		C4	14	14	28	22	50
33	Physical education and sport IV	2MM4OX33	X						1				1		A/R	0	14	14	0	14
34	Practical training, I, 30x3 hours/week	2MM4OD34	D										4		C4	0	90	90	0	90
TOTAL SECOND YEAR				**13**	**8**	**6**	**1**	**12**	**8**	**8**	**0**	**30**	**30**	**7E+8C**		**350**	**524**	**874**	**619**	**1493**
												60								

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No.	THIRD YEAR	Courses code	Course type	Semester 1				Semester 2				Credit points		Ei, Ci, Vi		No. of hours per discipline			Hours for individual study	Total of hours
	Courses			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Class	Apl.	Total		
35	Finite elements analysis	2MM5OS35	D	2		1						4		C5		28	14	42	58	100
36	Legal metrology	2MM5OD36	S	2		2						4		C5		28	28	56	44	100
37	Fluid mechanics and hydraulic machines	2MM5OD37	D	3	1	1						5		E5		42	28	70	55	125
38	Machine parts II	2MM5OD38	D	2		2						5		E5		28	28	56	69	125
39	Machine parts - project	2MM5OD39	D				2					2		C5		0	28	28	22	50
40	Optional course OP 31	2MM5AD40	D	2		2						5		E5		28	28	56	69	125
41	Reliability and maintenance	2MM5OS41	S	2		2						5		E5		28	28	56	69	125
42	Hydraulic and pneumatic drives	2MM6OD42	D					2		1			4		E6	28	14	42	58	100
43	Hydraulic and pneumatic drives (project)	2MM6OD43	D								2		2		C6	0	28	28	22	50
44	Labour protection in mining industry	2MM6OS44	S					2		2			4		E6	28	28	56	44	100
45	Mining technologies	2MM6OS45	S					3		1			4		E6	42	14	56	44	100
46	Computer Aided Design	2MM6OD46	D					3		2			5		E6	42	28	70	55	125
47	Tribology	2MM6OD47	D					2		2			4		C6	28	28	56	44	100
48	Optional course OP 32	2MM6OS48	S					2	2				3		C6	28	28	56	19	75
49	Practical training, II, 30x3 hours/week	2MM6OS49	S										4		C6	0	90	90	0	90
TOTAL THIRD YEAR				**13**	**1**	**10**	**2**	**14**	**2**	**8**	**2**	**30**	**30**	**8E+7C**		**378**	**440**	**818**	**672**	**1490**
												60								

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No.	FOURTH YEAR	Courses code	Course type	Semester 1				Semester 2				Credit points		Ei, Ci, Vi		No. of hours per discipline			Hours for individual study	Total of hours
	Courses			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Class	Apl.	Total		
50	Fabric. technologies for mining equipm. I	2MM7OS50	S	3		1						4		C7		42	14	56	44	100
51	Eq. for industrial processes I (project)	2MM7OS51	S	2		2						4		C7		28	28	56	44	100
52	Mining loading and transp. equipm. I	2MM7OS52	S	3		2						5		E7		42	28	70	55	125
53	Mining machines and installations I	2MM7OS53	S	3		1	1					6		E7		42	28	70	80	150
54	Mining mechanization	2MM7OS54	S	3		1	1					6		E7		42	28	70	80	150
55	Optional course OP 41	2MM7OS55	S	2		1						5		E7		28	14	42	83	125
56	Fabric. technologies for mining equipm. II	2MM8OS56	S					3		2			5		E8	42	28	70	55	125
57	Mining loading and transp. equipm. I	2MM8OS57	S					3			1		4		E8	42	14	56	44	100
58	Optional course OP 42	2MM8OS58	S					3		2			4		C8	42	28	70	30	100
59	Mining machines and installations II	2MM8OS59	S					3		1			4		E8	42	14	56	44	100
60	Fabrication eng. of process equipm.	2MM8OS60	S					3		1			4		C8	42	14	56	44	100
61	Practical training for elab. of grad. paper	2MM8OS61	S										5		C8		60	60	65	125
62	Elaboration of graduation paper	2MM8OS62	S								4		4		C8		56	56	69	125
TOTAL FOURTH YEAR				**16**	**0**	**8**	**2**	**15**	**0**	**6**	**5**	**30**	**30**	**7E+6C**		**434**	**354**	**788**	**737**	**1525**
												60								
For the pass of the diploma exam, additional 10 credits are awarded																				

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Optional courses					
Nr. crt.	**Courses code**	**Year of study**	**Courses**		
15	OP11	I	English Language	French Language	Spanish language
23	OP21	II	English Language	French Language	Spanish language
25	OP22	II	Numerical methods		Special Mathematics
31	OP23	II	English Language	French Language	Spanish language
32	OP24	II	Ethics and academic integrity		Environment protection
40	OP31	III	Electrotechnics		Electrical engineering and machines
48	OP32	III	Quality engineering		Industrial management
55	OP41	IV	Mechanical cutting of non-homogenous materials		High pressure jet cutting of rocks
58	OP42	IV	Materials recovery and reuse		Unconventional technologies in machine fabrication

Facultative courses																			
No.	Courses	Cod discipl.	Year of study	Semester 1				Semester 2				Credit points		Ei, Ci, Vi		No. of hours per discipline			Hours for individual study	Total of hours
				C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Cours	Apl.	Total		
62	General economy	2MM4LX62	II					2	2				4		C4	28	28	56	44	100
63	Experimental techniques in mech. Eng.	2MM5LS63	III	2		2						3		C5		28	28	56	19	75
64	Mining machinery maintenance	2MM6LS64	III					2		1		3		C5		28	14	42	33	75
65	Foreign languages 5	2MM6LX65	III						2				2		C6	0	28	28	22	50
66	Ingineria sistemelor de producție	2MM7LS66	IV	2	1							3		C7		28	14	42	33	75
67	Manipulators and robots	2MM7LS67	IV	2		2						4		C7		28	28	56	44	100
68	Energy ballances in mining	2MM8LS68	IV					2		2			4		C8	28	28	56	44	100

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DISTRIBUTION OF HOURS BY SUBJECT GROUPS				
Total course hours :		1484		
Total hours of applications :		1780		
Total teaching hours:		3264		
Total teaching hours / Total hours (%) :		3264 / 3264 x 100		100,00
Total hours of applications / Total hours (%) :		1780 / 3264 x 100		54,53
Total course hours / Total hours of applications (%) :		1484 / 1780 x 100		83,37
SUBJECTS GRUP		**No. hours**		**No. Hours/Total hours (%)**
Fundamental subjects F		602		18,44
Engineering subjects in the field D		1238		37,93
Specialized technical subjects S		1158		35,48
Complementary subjects	Physical education and sport	266	84	8,15
	Economic and humanistic subjects		154	
TOTAL		**3264**		100,00
Required subjects		2872		87,99
Optional subjects		392		12,01
Optional subjects		336		10,29

Comments: For 1 credit point of the discipline 25 hours are granted for the didactic preparation and individual study of the student.

Caption: **2 -** Faculty: Mechanical and Electrical Engineering; **B** - industrial engineering; **B** - Machine Building Technology;
F - fundamental discipline; **D** - domain discipline; **S** - specialized discipline; **X** - complementary discipline; **A** - optional discipline; **C** - class; **S** - seminar;
L - laboratory; **P** - project; **Ex.($E_{1...8}$)** - exam held in the semester 1…8; **Cv.($C_{1...8}$)** - colloquium held in the semester 1…8, A/R - PASS / FAIL.

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