

CURRICULUM

Starting with the 2018-2019 academic year

Study Program:	MACHINE BUILDING TECHNOLOGY
Fundamental Field:	ENGINEERING
Bachelor Field:	INDUSTRIAL ENGINEERING
Academic studies:	4 YEARS
Mode of studies:	FULL-TIME (F)
<i>full-time (F)/ low frequency (IFR)/ distance learning (ID)</i>	

TRAINING OBJECTIVES AND COMPETENCES

The general objective of the training programme: to create specialists in the design and management of industrial processes, the exploitation and maintenance of the machines and equipment used in industrial processes, and suitable 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:, according to the grid RNCIS.

Professional competences:

C1 - Ability to understand and assimilate principles, theorems, basic methods for conducting demonstrations and applications specific to fundamental disciplines.

C2 - Potential to know, understand and interpret the basic principles and concepts of constructive design in the industrial field of engineering sciences.

C3 - Competent in the knowledge, appreciation, use and design of manufacturing technologies in the field of machine building.

C4 - Capable of knowing and using industrial manufacturing and logistics equipment, the principles of their operation for the purpose of their exploitation and design.

C5 - Ability to understand and assimilate knowledge of manufacturing management and organization, and skills training to apply domain-specific methods and tools.

C6 - Competencies in the provision and control of industrial manufacturing in order to increase the accuracy and maintenance of processes.

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.*

Rector,

Prof. Ph.D. eng. Sorin Mihai RADU

Dean,

Assoc. Prof. Ph.D. eng. Iosif DUMITRESCU

UNIVERSITY OF PETROȘANI

MINISTRY of NATIONAL EDUCATION

Faculty: Mechanical and Electrical Engineering

Field: INDUSTRIAL ENGINEERING

Study program: Machine Building Technology

Engineers - IF, 4 years x 2 sem./year x 14 weeks./sem. x 26-28 hours/week., 3 weeks. main exam's sessions/sem.

STUDY PLAN
valid beginning with academic year 2018-2019

No.	FIRST YEAR	Courses code	Course tip	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	Chemistry	2BB1OF01	F	2	-	2	-	-	-	-	-	4	-	C ₁	-	28	28	56	44	100	
2	Materials science and engineering	2BB1OD02	D	2	-	2	-	-	-	-	5	-	E ₁	-	28	28	56	69	125		
3	Mathematical analysis	2BB1OF03	F	2	2	-	-	-	-	-	5	-	E ₁	-	28	28	56	69	125		
4	Descriptive geometry	2BB1OF04	F	1	-	2	-	-	-	-	3	-	C ₁	-	14	28	42	33	75		
5	Applied Informatics I	2BB1OF05	F	2	-	3	-	-	-	-	6	-	E ₁	-	28	42	70	80	150		
6	Mechanics I	2BB1OD06	D	2	2	-	-	-	-	-	4	-	E ₁	-	28	28	56	44	100		
7	English language I	2BB1OX07	X	-	2	-	-	-	-	-	2	-	C ₁	-	-	28	28	22	50		
8	Physical education and sport I	2BB1OX08	X	-	2	-	-	-	-	-	1	-	A/R	-	-	28	28	0	28		
9	Applied Informatics II	2BB2OF09	F	-	-	-	-	2	-	2	-	5	-	E ₂	28	28	56	69	125		
10	Mechanics II	2BB2OD10	D	-	-	-	-	2	1	1	-	5	-	E ₂	28	28	56	69	125		
11	Materials technology	2BB2OD11	D	-	-	-	-	2	-	2	-	5	-	E ₂	28	28	56	69	125		
12	Algebra, analytical and differential geo	2BB2OF12	F	-	-	-	-	2	2	-	-	4	-	E ₂	28	28	56	44	100		
13	Technical Drawing	2BB2OF13	F	-	-	-	-	2	-	2	-	4	-	C ₂	28	28	56	44	100		
14	Physics	2BB2OF14	F	-	-	-	-	2	-	2	-	4	-	C ₂	28	28	56	44	100		
15	English language II	2BB2OX15	X	-	-	-	-	-	2	-	-	2	-	C ₂	-	28	28	22	50		
16	Physical education and sport II	2BB2OX16	X	-	-	-	-	-	2	-	-	1	-	A/R	-	28	28	0	28		
TOTAL FIRST YEAR				13	8	7	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 tip	Semester 3				Semester 4				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.3	Sem.4	Sem.3	Sem.4	Class	Apl.	Total		
17	Thermotechnics and thermal machines	2BB3OD17	D	2	-	2	-	-	-	-	-	5	-	E ₃	-	28	28	56	69	125
18	Optional course OP 21	2BB3OF18	F	2	2	-	-	-	-	-	4	-	E ₃	-	28	28	56	44	100	
19	History of Technology and Science	2BB3OX19	X	2	1	-	-	-	-	-	3	-	C ₃	-	28	14	42	33	75	
20	Mechanisms	2BB3OD20	D	2	-	2	1	-	-	-	5	-	E ₃	-	28	42	70	55	125	
21	Infographics (CAD) I	2BB3OF21	F	2	-	2	-	-	-	-	4	-	C ₃	-	28	28	56	44	100	
22	Strength of Materials I	2BB3OD22	D	3	2	-	-	-	-	-	6	-	E ₃	-	42	28	70	80	150	
23	Optional course OP22 I	2BB3AX23	X	-	2	-	-	-	-	-	2	-	C ₃	-	-	28	28	22	50	
24	Physical education and sport III	2BB3OX24	X	-	1	-	-	-	-	-	1	-	A/R	-	-	14	14	0	14	
25	Infographics (CAD) II	2BB4OF25	F	-	-	-	-	1	-	2	-	3	-	C ₄	14	28	42	33	75	
26	Strength of Materials II	2BB4OD26	D	-	-	-	-	2	2	1	-	4	-	E ₄	28	42	70	30	100	
27	Mechanical vibrations	2BB4OD27	D	-	-	-	-	2	-	1	-	3	-	E ₄	28	14	42	33	75	
28	Tolerance and dimension control	2BB4OD28	D	-	-	-	-	2	-	2	-	4	-	E ₄	28	28	56	44	100	
29	Machine parts I	2BB4OD29	D	-	-	-	-	2	-	2	-	3	-	C ₄	28	28	56	19	75	
30	Basics of surface generation on machin	2BB4OD30	D	-	-	-	-	2	-	2	-	4	-	E ₄	28	28	56	44	100	
31	Optional course OP22 II	2BB4AX31	X	-	-	-	-	-	2	-	-	2	-	C ₄	-	28	28	22	50	
32	Optional course OP23	2BB4AX32	X	-	-	-	-	1	1	-	-	2	-	C ₄	14	14	28	22	50	
33	Physical education and sport IV	2BB4OX33	X	-	-	-	-	-	1	-	-	1	-	A/R	-	14	14	0	14	
34	Practical training, I, 30x3 hours/week	2BB4OD34	D	-	-	-	-	-	-	-	-	4	-	C ₄	-	90	90	0	90	
TOTAL SECOND YEAR				13	8	6	1	12	6	10	0	30	30	8E + 6C	350	524	874	594	1468	
												60								

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No.	THIRD YEAR	Courses code	Course tip	Semester 5				Semester 6				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.5	Sem.6	Sem.5	Sem.6	Class	Apl.	Total		
35	Fluid mechanics and hydraulic machine	2BB5OD35	D	3	1	1	-	-	-	-	-	6	-	E ₅	-	42	28	70	80	150
36	Electrical engineering and machines	2BB5OD36	D	2	-	2	-	-	-	-	4	-	E ₅	-	28	28	56	44	100	
37	Finite elements analysis	2BB5OD37	D	2	-	2	-	-	-	-	5	-	C ₅	-	28	28	56	69	125	
38	Machine parts II	2BB5OD38	D	2	-	2	-	-	-	-	5	-	E ₅	-	28	28	56	69	125	
39	Machine parts - project	2BB5OD39	D	-	-	-	2	-	-	-	2	-	C ₅	-	-	28	28	22	50	
40	Elements of electronics and automation	2BB5OD40	D	2	-	2	-	-	-	-	4	-	C ₅	-	28	28	56	44	100	
41	Machining and cutting tools	2BB5OD41	D	2	-	1	-	-	-	-	4	-	E ₅	-	28	14	42	58	100	
42	Tribology	2BB6OD42	D	-	-	-	-	2	1	-	-	3	-	E ₆	28	14	42	33	75	
43	Technological Devices	2BB6OD43	D	-	-	-	-	2	-	1	-	3	-	E ₆	28	14	42	33	75	
44	Machine-tools	2BB6OD44	D	-	-	-	-	2	-	2	-	4	-	E ₆	28	28	56	44	100	
45	Thermal treatments	2BB6OD45	D	-	-	-	-	2	1	-	-	3	-	C ₆	28	14	42	33	75	
46	Welding Technology	2BB6OS46	S	-	-	-	-	2	-	1	-	3	-	C ₆	28	14	42	33	75	
47	Cutter Tools Design	2BB6OS47	S	-	-	-	-	1	-	-	2	3	-	E ₆	14	28	42	33	75	
48	Optional course OP 31	2BB6AS48	S	-	-	-	-	2	-	1	-	3	-	C ₆	28	14	42	33	75	
49	Optional course OP32	2BB6AS49	S	-	-	-	-	2	-	2	-	4	-	C ₆	28	28	56	44	100	
50	Practical training, II, 30x3 hours/week	2BB6OS50	S	-	-	-	-	-	-	-	-	4	-	C ₆	-	90	90	0	90	
TOTAL THIRD YEAR				13	1	10	2	15	2	7	2	30	30	8E + 8C		392	426	818	672	1490
												60								

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No.	FOURTH YEAR Courses	Courses code	Course tip	Semester 7				Semester 8				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.7	Sem.8	Sem.7	Sem.8	Class	Apl.	Total		
51	Basics of Computer Assisted Tech. Design	2BB7OD51	D	2	-	2	-	-	-	-	-	5	-	E ₇	-	28	28	56	69	125
52	Reliability and maintenance	2BB7OD52	D	2	1	1	-	-	-	-	4	-	E ₇	-	28	28	56	44	100	
53	Assisted design of technological device	2BB7OS53	S	1	-	-	2	-	-	-	4	-	C ₇	-	14	28	42	58	100	
54	Technology of cold pressing	2BB7OS54	S	3	-	1	-	-	-	-	5	-	E ₇	-	42	14	56	69	125	
55	Technology of cold pressing - project	2BB7OS55	S	-	-	-	2	-	-	-	2	-	C ₇	-	-	28	28	22	50	
56	Optional course OP41	2BB7AS56	S	3	-	1	-	-	-	-	4	-	C ₇	-	42	14	56	44	100	
57	Machine Building Technology I	2BB7OS57	S	3	-	2	-	-	-	-	6	-	E ₇	-	42	28	70	80	150	
58	Machine Building Technology II	2BB8OS58	S	-	-	-	-	2	-	1	-	-	3	-	E ₈	28	14	42	33	75
59	Machine Building Technology -	2BB8OS59	S	-	-	-	-	-	-	2	-	2	-	C ₈	-	28	28	22	50	
60	Unconventional Technologies	2BB8OS60	S	-	-	-	-	2	-	1	-	-	3	-	E ₈	28	14	42	33	75
61	Manufacture of plastic and composite	2BB8OS61	S	-	-	-	-	3	-	1	-	-	4	-	E ₈	42	14	56	44	100
62	Optional course OP42	2BB8AS62	S	-	-	-	-	3	-	1	-	-	4	-	E ₈	42	14	56	44	100
63	Optional course OP43	2BB8AS63	S	-	-	-	-	2	-	1	-	-	3	-	C ₈	28	14	42	33	75
64	Optional course OP44	2BB8AS64	S	-	-	-	-	2	-	1	-	-	3	-	C ₈	28	14	42	33	75
65	Elaboration of graduation paper	2BB8OS65	S	-	-	-	-	-	-	-	4	-	4	-	C ₈	-	56	56	44	100
66	Practical training for elaboration of graduation paper	2BB8OS66	S	-	-	-	-	-	-	-	-	4	-	C ₈	-	60	60	0	60	
TOTAL FOURTH YEAR				14	1	7	4	14	0	6	6	30	30	8E +8C		392	396	788	672	1460
												60								
For the pass of the diploma exam, additional 10 credits are awarded																				

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Optional courses					
No.	Cod discipl.	Year of study	Courses		
18	OP21	II	Numerical methods		Special Mathematics
23	OP22 I	II	English language	French language	Spanish language
31	OP22 II	II	English language	French language	Spanish language
32	OP23	II	Ethics and academic integrity		Environment protection
48	OP31	III	Management of production and operations		Economic analysis of production systems
49	OP32	III	Hydraulic and pneumatic drives		Servomechanisms, transducers, sensors
56	OP41	IV	Basis of experimental research		Data acquisition and distribution systems
62	OP42	IV	Technological design on flexible manufacturing sy		Robotic process technology
63	OP43	IV	Computer-assisted quality - CAQ		Optimization of manufacturing technologies
64	OP44	IV	Management of the maintenance of production sys		Risk management

Facultative course																					
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			
67	General economy	2BB4LX67	II	2	1	-	-	-	-	-	-	-	3	-	C ₃	-	28	14	42	33	75
68	Technical statistics	2BB4LS68	II	-	-	-	-	2	1	-	-	-	3	-	-	C ₄	28	14	42	33	75
69	Foreign Languages V	2BB5LX69	III	-	2	-	-	-	-	-	-	2	-	C ₅	-	-	28	28	28	22	50
70	Creativity and inventiveness	2BB5LS70	III	2	-	2	-	-	-	-	-	4	-	C ₅	-	28	28	56	44	100	
71	Foreign Languages VI	2BB6LX71	III	-	-	-	-	-	2	-	-	-	2	-	-	C ₆	-	28	28	22	50
72	Ergonomics in machine building	2BB6LS72	III	-	-	-	-	2	-	2	-	-	4	-	-	C ₆	28	28	56	44	100
73	Entrepreneurship	2BB7LS73	IV	2	1	-	-	-	-	-	-	3	-	C ₇	-	28	14	42	33	75	
74	Mechatronics	2BB7LS74	IV	2	-	2	-	-	-	-	-	4	-	C ₇	-	28	28	56	44	100	
75	Project Management	2BB8LS75	IV	-	-	-	-	2	-	1	-	-	3	-	-	C ₈	28	14	42	33	75

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DISTRIBUTION OF HOURS BY SUBJECT GROUPS						
Total course hours :		1456				
Total hours of applications :		1808				
Total teaching hours:		3264				
Total teaching hours / Total hours (%) :		3264	/	3264	x 100	100,00
Total hours of applications / Total hours (%) :		1808	/	3264	x 100	55,39
Total course hours / Total hours of applications (%) :		1456	/	1808	x 100	80,53
SUBJECTS GRUP		Nr.hours	P.Cr.	Nr.hours/Total hours (%)		
Fundamental subjects F		602	46	18,44		
Engineering subjects in the field D		1448	109	44,36		
Specialized technical subjects S		948	68	29,04		
Complementary subjects	Physical education and sport	266	84	4	8,15	2,57
	Economic and humanistic subj		182			13
TOTAL		3264	240	100,00		
Required subjects		2844	209	87,13		
Optional subjects		420	31	12,87		
Optional subjects		392	28	12,01		

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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