

UNIVERSITY OF PETROSANI
MECHANICAL AND ELECTRICAL ENGINEERING FACULTY

CURRICULUM PLAN

Starting with the 2018-2019 academic year

Study Program:	APPLIED AUTOMATION AND INFORMATION
Fundamental Field:	PROCESSING
Bachelor Field:	ENGINEERING
	SYSTEMS ENGINEERING
Academic studies:	4 YEARS
Mode of studies:	FULL-TIME (F)
full-time (F)/ low frequency (IFR)/	
distance learning (ID)	

TRAINING OBJECTIVES AND COMPETENCES

General objective of the curriculum: the training of specialists with high theoretical and practical learning for the systems engineering, design and research sectors. The main mission of this study program is to prepare engineers with competencies in the field of Systems Engineering, able to work in any engineering field in which using of systems engineering knowledge is appropriate.

Specific objectives of the curriculum: knowledge transmission and necessary skills formation to acquire the following competencies.

Professional competences:

C1-The utilization of the knowledge of mathematics, physics, measurement technique, technical graphics, mechanical engineering, chemical, electrical and electronic in the systems engineering

C2-The operation with fundamental concepts in computer science, information technology and communications

C3-The utilization of the automation fundamentals, of the modeling methods, the simulation, the identification and the analysis processes, the design computer techniques aided

C4-The design, the implementation, the testing, the use and the maintenance of the systems with general-purpose and dedicated equipment, including computers networks, for the automatic applications and the applied informatics

C5-Application development and implementation of algorithms and automated control systems, using the principles project management, programming environments and technologies based on microcontrollers, signal processors, programmable automatic, the embedded systems

C6- The application of the knowledge of legislation, economics, marketing, business and quality assurance in the context of economic and managerial

Transversal competences:

CT1 - The responsibility execution of the professional duties, under the limited autonomy and qualified assistance.

CT2 - Familiarity with specific roles and activities of teamwork and distributing tasks to subordinate levels.

CT3 - Awareness of the need for training, resource efficiency and learning techniques for personal and professional development.

RECTOR,

DEAN,

Professor Ph.D. Sorin Mihai RADU

Associate Professor Ph.D. Iosif DUMITRESCU

STUDY PLAN

valid beginning with academic year 2018 - 2019

No.	FIRST YEAR	Code	Type	Semester 1				Semester 2				ECTS		Ei, Ci, Vi		No of teaching hours			Total hours of individual study	Total hours for subject
	Subject			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Course	Apps	Total		
1	Linear Algebra, Analytical and Differential Geometry	2SA1OF01	F	2	2							5		E1		28	28	56	69	125
2	Mathematical Analysis	2SA1OF02	F	2	2							5		E1		28	28	56	69	125
3	Applied Informatics	2SA1OF03	F	3		3						6		E1		42	42	84	66	150
4	Electrotechnics	2SA1OD05	D	3		2						6		E1		42	28	70	80	150
5	Chemistry	2SA1OF06	F	2		1						3		C1		28	14	42	33	75
6	Optional Course 11	2SA1OX06	X	1		1						2		C1		14	14	28	22	50
7	English Language I	2SA1OX07	X		2							2		C1		0	28	28	22	50
8	Physical Education I	2SA1OX08	X		2							1		C1		0	28	28	0	28
9	Electrical Machines and Drives	2SA2OD09	D					3		2			5		E2	42	28	70	55	125
10	Computer Aided Graphics	2SA2OF10	F					3		2			6		E2	42	28	70	80	150
11	Computer Programming, Programming Languages I	2SA2OF11	F					3		2			6		E2	42	28	70	80	150
12	Linear electronic circuits	2SA2OD12	D					3		2			6		E2	42	28	70	80	150
13	Physics	2SA2OF13	F					2		2			4		C2	28	28	56	44	100
14	English Language II	2SA2OX14	X						2				2		C2	0	28	28	22	50
15	Physical Education II	2SA2OX15	X						2				1		C2	0	28	28	0	28
TOTAL FIRST YEAR				13	8	7	0	14	4	10	0	30	30	8E + 7C	378	406	784	722	1506	

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No.	SECOND YEAR	Code	Type	Semester 3				Semester 4				ECTS		Ei, Ci, Vi		No of teaching hours			Total hours of individual study	Total hours for subject
	Subject			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Course	Apps	Total		
16	Optional Course 21	2SA3AF16	F	2	2							5		E3		28	28	56	69	125
17	Digital Devices Analysis and Synthesis	2SA3OD17	D	3	1	2						6		E3		42	42	84	66	150
18	Computer Programming, Programming Languages II	2SA3OF18	F	3		2						6		E3		42	28	70	80	150
19	Measurement and Transducers I	2SA3OD19	D	3		2						6		E3		42	28	70	80	150
20	Databases	2SA3OD20	D	2		2						4		C3		28	28	56	44	100
21	English Language III	2SA3OX21	X		2							2		C3		0	28	28	22	50
22	Physical Education III	2SA3OX22	X		2							1		C3		0	28	28	0	28
23	Digital Electronics	2SA4OD23	D					3		2			5		E4	42	28	70	55	125
24	Software Systems Engineering	2SA4OD24	D					2		2			4		E4	28	28	56	44	100
25	Computer Architecture	2SA4OD25	D					3		2			4		E4	42	28	70	30	100
26	Systems Theory I	2SA4OD26	D					3		2			5		E4	42	28	70	55	125
27	Robotics	2SA4OD27	D					3		2			5		C4	42	28	70	55	125
28	English Language IV	2SA3OX28	X							2			2		C4	0	28	28	22	50
29	Physical Education IV	2SA3OX29	X							2			1		C4	0	28	28	0	28
30	Field Practice (3 weeks × 30 hours/week)	2SA4OD30	D										4		C4	0	90	90	0	90
TOTAL SECOND YEAR				13	7	8	0	14	4	10	0	30	30	8E + 7C	378	496	874	622	1496	

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No.	THIRD YEAR	Code	Type	Semester 5				Semester 6				ECTS		Ei, Ci, Vi		No of teaching hours			Total hours of individual study	Total hours for subject		
	Subject			C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Course	Apps	Total				
31	Systems Theory II	2SA5OD31	D	2		2							5		C5		28	28	56	69	125	
32	Microprocessor Systems	2SA5OD32	D	2		2							4		E5		28	28	56	44	100	
33	Microprocessor Systems	2SA5OD33	D				1						2		C5		0	14	14	36	50	
34	Power Electronics	2SA5OS34	S	2		2							4		E5		28	28	56	44	100	
35	Modeling, Identification and Simulation	2SA5OD35	D	3		2							6		E5		42	28	70	80	150	
36	Measurement and Transducers II	2SA5OD36	D	3		2							6		E5		42	28	70	80	150	
37	Optional Course 31	2SA5AS37	S	2		1							3		C5		28	14	42	33	75	
38	Microcontrolllers - architecture and programming	2SA6OS38	S					2		2			4		E6		28	28	56	44	100	
39	Microcontrolllers - architecture and programming	2SA6OS39	S								1		2		C6		0	14	14	36	50	
40	Automated Systems Engineering	2SA6OD40	D					3		2	1		6		E6		42	42	84	66	150	
41	Optimization	2SA6OD41	D					3		2			5		E6		42	28	70	55	125	
42	Optional Course 32	2SA6AS42	S					2		2			4		E6		28	28	56	44	100	
43	Object Oriented Programming	2SA6AS43	S					2		1			3		C6		28	14	42	33	75	
44	Reliability and Diagnosis	2SA6OS44	S					2		1			2		C6		28	14	42	8	50	
45	Practice (3 weeks × 30 hours/week)	2SA6OS45	S										4		C6		0	90	90	0	90	
TOTAL THIRD YEAR				14	0	11	1	14	0	10	2		30	30			392	426	818	672	1490	
												60		8E +7C								

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No.	FOURTH YEAR	Code	Type	Semester 7				Semester 8				ECTS		Ei, Ci, Vi		No of teaching hours			Total hours of individual study	Total hours for subject
				Subject	C	S	L	P	C	S	L	P	Sem.1	Sem.2	Sem.1	Sem.2	Course	Apps		
46	Fuzzy systems and Neuronal Networks	2SA7OS46	S	2		2						5		E7		28	28	56	69	125
47	Robot Control Systems	2SA7OS47	S	3		2	1					6		E7		42	42	84	66	150
48	I/O circuits and process interfaces	2SA7OS48	S	2		1						4		C7		28	14	42	58	100
49	Optional Course 41	2SA7AS49	S	2		2						5		E7		28	28	56	69	125
50	Optional Course 42	2SA7AS50	S	3		2	1					6		E7		42	42	84	66	150
51	Optional Course 43	2SA7AS51	S	2		1						4		C7		28	14	42	58	100
52	Optional Course 44	2SA8AS52	S					3		2			5		E8	42	28	70	55	125
53	Optional Course 45	2SA8AS53	S					3		2			5		E8	42	28	70	55	125
54	Optional Course 46	2SA8AS54	S					2		1	1		4		C8	28	28	56	44	100
55	Optional Course 47	2SA8AS55	S					2		2			4		E8	28	28	56	44	100
56	Data Transmission	2SA8OS56	S					2		2			4		E8	28	28	56	44	100
57	Project elaboration	2SA8OS57	S								4		4		C8	0	56	56	44	100
58	Practice for project elaboration	2SA8OS58	S										4		C8	0	60	60	40	100
TOTAL FOURTH YEAR				14	0	10	2	12	0	9	5	30	30	8E +5C		364	424	788	712	1500
59	Diploma Project											10								

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OPTIONAL SUBJECTS				
No.	Code	Study year	Subject	
6	OP 11	I	Communication	Ethics and Academic Integrity
16	OP 21	II	Special Mathematics	Numerical Methods
37	OP 31	III	Hydropneumatic Equipments	Hydro and Pneumatic Systems
42	OP 32	III	Artificial Intelligence	Expert Systems in System Control
49	OP 41	IV	Continuous processes Control systems	Technological Processes Control Systems
50	OP 42	IV	Data acquisition systems	Virtual instrumentation
51	OP 43	IV	Computer networks in automation	Industrial Computer networks
52	OP 44	IV	Special Electrical Actuating	Electronic Equipment for Automated Systems
53	OP 45	IV	Operating Systems in automation	Real Time Software Design
54	OP 46	IV	Projects management	Project design Methodology
55	OP 47	IV	Industrial automation	Complex processes cutomation

FACULTATIVE SUBJECTS																
No	Subject	Code	Study year	Semester 1			Semester 2			ECTS	Ei Ci	No.hours			Prep hours	Total hours
				C	S	L	C	S	L			Course	App	Total		
60	General economics	2SA2LX61	I				1	1		2	C2	14	14	28	22	50
61	Documents management	2SA4LS62	II				2		2	3	C4	28	28	56	19	75
62	French I / german I / spanish language I	2SA5LX63	III		2					2	C5	0	28	28	22	50
63	Environment protection	2SA5LX64	III	1		1				2	C5	14	14	28	22	50
64	French II / german II / spanish language II	2SA6LX65	III					2		2	C6	0	28	28	22	50
65	Embedded systems	2SA6LS66	III				2		2	4	C6	28	28	56	44	100
66	Entrepreneurship	2SA7LX67	IV	2	1					2	C7	28	14	42	8	50
67	Java programming	2SA7LS68	IV	1		2				3	C7	14	28	42	33	75
68	Career counseling and guidance	2SA8LX69	IV				1	1		2	C8	14	14	28	22	50
69	SCADA systems	2SA8LS70	IV				2		2	3	C8	28	28	56	19	75

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