



MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute"
CURRICULUM
(Enrolment 2017)

APPROVED

by Rector of Igor Sikorsky Kyiv Polytechnic Institute

Level Bachelor
Speciality 131 Applied Mechanics
Specialization Mechatronic Systems in Mechanical Engineering
Graduation Department Applied Hydro-Aeromechanics and Mechatronics

Form of study full-time
(full-time, part-time)
Institute Mechanical Engineering
Qualification Mechanical Engineer
Study duration 3 year 10 months
Base level Full Secondary Education

Michael Zgurovsky
2017

I. Schedule of educational process

YEAR	September				October				November				December				January				January				March				April				May				June				July				August							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52
I																			E	E	H	H																			E	E	H	H	H	H	H	H	H	H	H	H
II																			E	E	H	H																			E	E	H	H	H	H	H	H	H	H	H	H
III																			E	E	H	H																			E	E	H	H	H	H	H	H	H	H	H	H
IV																			E	E	H	H																			E	P	P	P	P	P	R	R	R	R	R	R

Symbols: Learning period | Examination | Practice | Research | Assessment | Holiday

II. Summary table of time budget (Weeks)

YEAR	Learning period	Examination	Practice	Assessment	Research	Holiday	Total
I	36	4				12	52
II	36	4				12	52
III	36	5				11	52
IV	27	3	5	2	4	2	43

III. Practice

Type of practice	YEAR	Weeks
Pre-diploma Practice	4	5

IV. Graduates assessment

Subjects	Form of graduates assessment (exam, graduation project)	YEAR
Diploma Project	Graduation Project	4

V. Plan of Educational process

Code	Subjects	Distribution for terms (semesters)				ECTS Credits	Number of hours								
		Exams	Final tests	Course projects	Coursework		Total	Lectures/practical lessons			Self-study				
								Lectures	Practical	Laboratory					
1	2	3	4	5	6	7	8	9	10	11	12				
I. GENERAL TRAINING															
I.1. Natural-scientific training															
1/I	Chemistry	1				4	120	36		36	48				
2/I	Analytic Geometry		1			3,5	105	36	36		33				
3/I	Higher Mathematics	1, 2, 3				17,5	525	144	144		237				
4/I	Engineering and Computer Graphics		2			4	120	36	36		48				
5/I	Physics	2	3			10,5	315	108	36	36	135				
6/I	Theoretical Mechanics	3	2, 4			11	330	108	72		150				
total number of part I.1						6	5			50,5	1515	468	324	72	651
I.2. Basic training (major courses)															
1/II	Construction Materials Engineering		1			4,5	135	36	18	18	63				
2/II	Information Technology	1				3	90	18		18	54				
3/II	Information Systems		1			3	90			36	54				
4/II	Informatics		2		2	3	90			36	54				
5/II	Materials Science	2				4,5	135	36	18	18	63				
6/II	Mechanics of Materials and Structures	3, 4			4	14	420	108	72	36	204				
7/II	Theory of Mechanisms and Machines	4	5		5	6	180	36	27	18	99				
8/II	Theoretical Fundamentals of Heat Engineering		5			3	90	36		18	36				
9/II	Hydro-Aeromechanics and Hydraulics		5			4	120	54		18	48				
10/II	Electrical Engineering and Electronics		5			3	90	36		18	36				
12/II	Metrology, Standardization and Certification		6			4	120	36	18	18	48				
11/II	Machine Parts and Design Fundamentals		6	6		5,5	165	36	18	18	93				
13/II	Life Safety and Labour Protection		7			4	120	36	28	8	48				
14/II	Economics and Production Organization		7			4	120	36	36		48				
total number of part I.3						5	11	1	3	65,5	1965	504	235	278	948
I.3. Basic training (optional courses)															
1/III	Ecological subjects		4			2	60	18	18		24				
2/III	Pre-diploma Practice		8			7,5	225				225				
3/III	Diploma Project					6	180				180				
total number of part I.3						2				15,5	465	18	18	429	
I.4. Humanities training (optional courses)															
1/IV	History Subjects		1			2	60	18	18		24				
2/IV	Ukrainian Language Subjects		2			2	60	18	18		24				
3/IV	Philosophy Subjects		3			2	60	18	18		24				
4/IV	Psychology Subjects		3			2	60	18	18		24				
5/IV	Subjects on Law		6			2	60	18	18		24				
6/IV	Subjects on Humanities and Social Sciences #1		6			2	60	18	18		24				
7/IV	Subjects on Humanities and Social Sciences #2		7			2	60	18	18		24				
8/IV	Foreign Language		2, 4			6	180		144		36				
9/IV	Foreign Language for Professional Purposes		6, 7			4	120		90		30				
total number of part I.4						11				24	720	126	360	234	
TOTAL IN GENERAL TRAINING															
II. VOCATIONAL TRAINING															
II.1. Vocational and practical training (major courses)															
1/c	Electric Drives of Mechatronic Systems		5			5	150	36	9	36	69				
2/c	Fundamentals of Mathematical Modeling and Design of Multi-Physics Systems		5, 6			10,5	315	72	18	72	153				
3/c	Hydraulic Drives in Mechatronic Systems		6	7	7	10	300	72	18	36	174				
4/c	Electro-Pneumatic Devices for Automation		6			5	150	36	18	18	78				
5/c	Fundamentals of Hydraulic Control Systems for Mechatronics		7			5	150	36	18	18	78				
6/c	Fundamentals of Control Algorithms and PLC Programming in Mechatronics		7			5	150	18		54	78				
7/c	Computer Aided Modeling of Systems in Mechatronics and Robotics		7			4,5	135	18		36	81				
8/c	Production Technology of Mechanical Components for Robots		8			4	120	18	18	18	66				
9/c	Robots and Manipulators in Machine Building			8		3,5	105	18	18	18	51				

total number of part II.1		9	2	1		52,5	1575	324	117	306	828
II.2. Vocational and practical training (optional courses)											
1/cb	Fundamentals of Computer Aided Design		3			4	120	36	36		48
2/cb	Computer Aided Design		3		3	2,5	75	18		18	39
3/cb	Logic Synthesis of Mechatronic Systems	4				6,5	195	36		72	87
4/cb	Pneumatic Drives in Mechatronic Systems		4			5	150	36	18	36	60
5/cb	Hydraulic and Pneumatic Motors for Mechatronic Systems	5				6,5	195	36	36	36	87
6/cb	Computer Aided Design of Modules for Mechatronics and Robotics		8		8	4	120	18	36		66
7/cb	Electronic Control Systems	8				3,5	105	18		36	51
total number of part II.2		3	4		2	32	960	198	126	198	438
TOTAL IN VOCATIONAL TRAINING		12	6	1	2	84,5	2535	522	243	504	1266
TOTAL		23	35	2	5	240	7200	1638	1180	854	3528

Approved by Faculty Academic Council, Meeting protocol № 8 from April 27, 2017

Head of the Department _____ O. F. Luhovs'kyy

Director of the Institute _____ M. I. Bobyr