Field of study: Automatic Control and Robotics

Contact person:

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Institute of Robotics and Machine Intelligence

Institute of Automatic Control and Robotics

Automatic control and robotics, 1st degree studies – BSc

Descriptions of modules (ECTS cards) available at:

http://creef.put.poznan.pl/images/stories/ects/2019_20/EN/ects_air_stac_1st_angielski_en.pdf

No.	Name of Module	ECTS
	Semester 1 (winter semester)	
1	Mathematics I (E)	8
2	Mathematics II (E)	6
3	The elements of computer science techniques	3
4	Information engineering (E)	8
5	Physical education	0
	Semester 2 (summer semester)	
1	Information engineering [cont.]	2
2	Electrical engineering (circuits theory) (E)	7
3	Selected topics in mathematics I	2
4	Selected topics in mathematics II	2
5	Physics (E)	3
6	Theoretical mechanics and mechanics of materials (E)	5
7	Signals and dynamic systems (E)	4
8	Physical education	0
	Semester 3 (winter semester)	
1	Electrical engineering (circuits theory) [cont.]	2
2	Physics [cont.]	2
3	Signals and dynamic systems [cont.]	2
4	Electronics	5
5	Control basics	4
6	Real-time systems (E)	3
7	Electrical machines and drives in control engineering (E)	3
	Semester 4 (summer semester)	
1	Electronics (E) [cont.]	4
2	Control basics (E) [cont.]	5
3	Real-time systems [cont.]	2
4	Electrical machines and drives in control engineering [cont.]	2
5	Robotics	2
6	Microprocessor systems	4
7	Control of electrical drives (E)	3
8	Metrology	4

		Semester 5 (winter semester)	
1	Robotics (E) [cont.]		5
2	Microprocessor systems (E) [cont.]		5
3	Control of electrical drives [cont.]		2
4	Devices of automation and actuators (E)		5
5	System identification (E)		5
6	Control theory of the continuous and discrete events processes		1
7	Electronical and electrical circuits designing		2
8	Elective Course I		5
	Semester 6 (summer semester)		
1	Control theory of the continuous and discrete events processes (E) [cont.]		5
2	Digital controllers and PLC		6
3	Term design		6
4	Control of motion and electrical vehicles (E) [Aut.]		5
5	Mechanical constructions (E) [Rob.]		5
6	Elective course II (E)		5
	Semester 7 (winter semester)		
1	Flexible manufacturing systems (E)		5
2	Computer control systems (E)		4
3	Analysis of control systems (E) [Aut.]		5
4	Robot programming and task planning (E) [Rob.]		5

Automatic control and robotics, 2nd degree studies – MSc

Descriptions of modules (ECTS cards) available at:

http://creef.put.poznan.pl/images/stories/ects/2019_20/EN/ects_air_stac_1st_angielski_en.pdf

No.	Name of Module	ECTS
	Semester 1 (summer semester)	
1	Physical education	0
2	Optimization theory and methods (E)	4
3	Modelling, identification and computer simulation (E)	6
4	Basic tools and methods for autonomous robot programming (E)	4
5	Mobile and cloud technologies (E)	4
6	Electric drives in industrial processes, vehicles, machines and robots (E)	4
7	Fundamentals of autonomous systems (E)	4
8	Nonlinear Systems (E)	4
9	Adaptive control (E)	4
10	Basics of smart systems	4
11	Sensor integration	4
	Semester 2 (winter semester)	
1	Advanced methods of industrial robot programming and task planning (E)	4
2	Adaptive and robust control (E)	4
3	Autonomous robots (E)	4
4	Computer control systems (E)	5
5	Problem laboratory	5

6	Advanced image processing (E)	4
7	Selected problems of machine learning	3
8	Aerial robots	3
9	Nonlinear control systems (E)	4
10	Control of flying robots (E)	4
11	Research project	2
12	Navigation and motion planning in robotics	4
13	Electronic systems of flying vehicles	4
	Semester 3 (summer semester)	
1	EC1: Design of multi-agent systems (E)	4
2	EC1: Control of under-actuated systems (E)	4
3	EC2: Vision based control (E)	4
4	EC2: Design of control systems (E)	4
5	Flight communication (E)	3

Field of study: Electrical Engineering

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Institute of Electrical Engineering and Electronics

Electrical Engineering, 1st degree studies – BSc

Descriptions of modules (ECTS cards) available at:

http://creef.put.poznan.pl/images/stories/ects/2018_19/EN/ET_ang_stacjonarne_2st.pdf

No.	Name of Module	ECTS
	Semester 1 (winter semester)	
1	Circuits theory (E)	6
	Semester 2 (summer semester)	
1	Information technology (E)	4
2	Numerical methods	3
3	Circuits theory (E)	8
4	Metrology	2
	Semester 3 (winter semester)	
1	Electrical machines	2
2	Information technology	1
3	Metrology (E)	4
4	Electromagnetic field theory (E)	5
5	Basics of Lighting Engineering	5
	Semester 4 (summer semester)	
1	Electrical machines (E)	6
2	Modular : Basics of Electroheat and Optics Radiance	3

3	Electronics and power electronics (E)	4
4	Mechanics and mechatronics	1
5	Computerization of design in electrical engineering (E)	2
Semester 5 (winter semester)		
1	Microprocessor technology (E)	4
2	Renewable energy sources	2
3	Electronics and power electronics	2
4	Introduction to telecommunication	3
5	Optoelectronic	1
6	Computerization of design in electrical engineering	1
Semester 6 (summer semester – regular courses)		
1	Optoelectronic	1
2	Technical electrodynamics	3
Semester 6 (summer semester – elective courses)		
1	Elective course A:Electrical and electronic systems in industry and vehicles	4
2	Elective course A: Basic of Lighting Design (E)	4
3	Elective course A: Analog and digital electronic circuits (E)	4
4	Elective course B: Automation and computer systems in industry	3
5	Elective course B: PLC controllers and SCADA systems in measurement and control	3
6	Elective course B: CAD systems in digital prototyping of technical objects	3
7	Elective course C: SCADA systems and PLCs in industry	3
8	Elective course C: Light and Lighting	3
9	Elective course C: Computer methods of designing and controlling mechatronic systems	3
Semester 7 (winter semester – elective courses)		
1	Elective course D: CAD systems and electromagnetic compatibility (E)	6
2	Elective course D: Computer-aided measurement in industry (E)	6
3	Elective course D: PLC logic controllers and PLD programmable systems (E)	6
4	Elective course E: Electromobility and energy storage	5
5	Elective course E: Electronic circuits in practice	5
6	Elective course E: Electrical and computer systems of mechatronics	5
7	Elective subject F: Intelligent building	4
8	Elective course F: Lighting design in CAD systems	4
9	Elective subject F: Energy conversion systems in renewable energy systems and electric vehicles	4

Electrical Engineering, 2nd degree studies – MSc

Descriptions of modules (ECTS cards) available at:

http://creef.put.poznan.pl/images/stories/ects/2018_19/EN/ET_ang_stacjonarne_1st.pdf

No.	Name of Module	ECTS
	Semester 1 (summer semester)	
1	Selected issues of electrical engineering (E)	4
2	Electromechanical propulsion systems	3
3	Electrical measurements of non-electrical quantities	2
4	Lighting engineering and electroheat	4
5	Electronics and power electronics (E)	4
6	Object-oriented programming in electrical engineering	2
	Semester 2 (winter semester)	
1	Selected issues of electrical engineering (E)	4
2	Numerical methods in technique	2
3	Computer measurement systems	2
4	Microprocessor technology	2
5	Electromagnetic compatibility	2
6	Selected issues of signal processing	2
7	Electromechanical propulsion systems (E)	2
	Semester 3 (summer semester)	
1	Application of microcontrollers and PLC controls in measurements	6
2	Computer aided design	1
3	Computer graphics	2
4	Computer methods in electrodynamics	3
5	Control engineering and information technology in industry and vehicles	2
6	Control of power electronic systems (E)	5
7	Design and simulation of electronic systems	3
8	Diploma project	2
9	Dynamic of systems	1
10	Electrical and electronic systems in industry and vehicles	3
11	Electrothermal processes	3
12	Fundamentals of biomedical engineering (E)	3
13	Hybrid vehicles	1
14	Intelligent building (E)	4
15	Lighting design	1
16	Lighting engineering	5
17	Lighting equipment (E)	5
18	New technology in electromechanics	1
19	Optimisation methods in electromagnetic devices design (E)	4
20	Property security techniques	2
21	SCADA systems and PLCs	3
22	Selected problems with evaluation of power quality	3
23	Signal processors	5
24	Technologies in Internet	1
25	Testing of electrical drives in mechatronics	3
26	Power electronics converters in renewable energy sources	4

Field of study: Mathematics in technology

Contact person:

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Institute of Mathematics

Mathematics in technology, 1st degree studies – BSc

Descriptions of modules (ECTS cards) available at:

https://www.put.poznan.pl/pl/karty-ects/20192020/matematyka-w-technice

No.	Name of Module	ECTS
	Semester 1 (winter semester)	
1	Mathematical analysis I (E)	8
2	Linear algebra with analytic geometry (E)	5
3	Descriptive statistics (E)	2
4	Technologies of information (ECDL)	3
5	Introduction to programming	4
6	Engineering graphics	4
	Semester 2 (summer semester)	
1	Mathematical analysis II (E)	8
2	Linear algebra with analytic geometry (E)	5
3	Discrete mathematics	3
4	Technologies of information (ECDL)	3
5	Programming I	4
	Semester 3 (winter semester)	
1	Algorithm and data structures	4
2	Ordinary differential equations (E)	4
3	Theory of probability	3
4	Numerical methods (E)	6
	Semester 4 (summer semester)	
1	Statistics for engineers (E)	4
2	Numerical linear algebra (E)	4
3	Programming II	4
	Semester 5 (winter semester)	
1	Functional analysis / Elements of general topology	4
2	Statistics for engineers	4
3	Symbolic computation	1
4	Numerical methods (E)	6
5	Object-oriented programming	3
	Semester 6 (summer semester)	
1	Mathematical statistics (E)	3
2	Optimization methods	4
3	Finite difference method (FDM)	4
	Semester 7 (winter semester)	
1	Reliability theory (E) / Multidimensional statistical analysis (E)	4
2	Introduction to approximation theory (E) / Special functions (E)	4