

Field of study: Automatic Control and Robotics

Contact person:

- Joanna Ziętkiewicz – joanna.zietkiewicz@put.poznan.pl

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:

<https://www.put.poznan.pl/karty-ects/20212022/automatyka-i-robotyka---automatic-control-and-robotics/stacjonarne/studia-pierwszego-stopnia>

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
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
5	Tools and software for robotic systems	4

Automatic control and robotics, 2nd degree studies – MSc

Descriptions of modules (ECTS cards) available at:

<https://www.put.poznan.pl/karty-ects/20212022/automatyka-i-robotyka---automatic-control-and-robotics/stacjonarne/studia-drugiego-stopnia>

No.	Name of Module	ECTS
Semester 1 (summer semester)		
1	Optimization theory and methods (E)	4
2	Modelling, identification and computer simulation (E)	6
3	Basic tools and methods for autonomous robot programming (E)	4
4	Mobile and cloud technologies (E)	4
5	Drives in processes, machines plants and robots (E)	4
6	Fundamentals of autonomous systems (E)	4
7	Nonlinear Systems (E)	4
8	Adaptive control (E)	4
9	Basics of smart systems	4
10	Sensor integration	3
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 computer vision (E)	4
7	Selected topics in 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

Contact person:

- Arkadiusz Dobrzycki – arkadiusz.dobrzycki@put.poznan.pl

Institute of Electrical Engineering and Electronics

Electrical Engineering, 1st degree studies – BSc

Descriptions of modules (ECTS cards) available at:

<https://www.put.poznan.pl/karty-ects/20222023/elektrotechnika/stacjonarne/studia-pierwszego-stopnia>

No.	Name of Module	ECTS
Semester 1 (winter semester)		
1	Circuits theory (E) (Teoria obwodów)	6
2	Geometry and engineering graphics (Geometria i grafika inżynierska)	3
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 (Maszyny elektryczne)	2
2	Information engineering (Informatyka)	1
3	Metrology (E) (Metrologia)	4
4	Electromagnetic field theory (E) (Teoria pola elektromagnetycznego)	5
5	Mechanics and mechatronics (Mechanika i mechatronika)	2
Semester 4 (summer semester)		
1	Electrical machines (E) (Maszyny elektryczne)	6

2	Electronics and power electronics (E) (Elektronika i energoelektronika)	4
3	Mechanics and mechatronics (Mechanika i mechatronika)	1
4	Computerization of the designing in the electrical engineering (E) (Komputeryzacja projektowania w elektrotechnice)	2
5	Electronics and power electronics (E) (Elektronika i energoelektronika)	4
Semester 5 (winter semester)		
1	Microprocessor technology (E) (Technika mikroprocesorowa)	4
2	Renewable energy sources (Odnawialne źródła energii)	2
3	Electronics and power electronics (Elektronika i energoelektronika)	2
4	Introduction to telecommunications (Wprowadzenie do telekomunikacji)	3
5	Optoelectronics (Optoelektronika)	1
6	Computerization of the designing in the electronics (Komputeryzacja projektowania w elektrotechnice)	1
Semester 6 (summer semester – regular courses)		
1	Optoelectronics (Optoelektronika)	1
2	Technical electrodynamics (Elektrodynamika techniczna)	3
Semester 6 (summer semester – elective courses)		
1	Elective course A: Electrical and electronic systems in vehicles (E) (Przedmiot obieralny A: Układy elektryczne i elektroniczne w pojazdach)	4
2	Elective course A: Fundamentals of lighting design (E) (Przedmiot obieralny A: Podstawy projektowania oświetlenia)	4
3	Elective course A: Analog and digital electronic circuits (E) (Przedmiot obieralny A: Analogowe i cyfrowe układy elektroniczne)	4
4	Elective course B: PLC controllers and SCADA systems in measurement and control (Przedmiot obieralny B: Sterowniki PLC i systemy SCADA w pomiarach i sterowaniu)	3
5	Elective course B: CAD systems in digital prototyping of technical objects (Przedmiot obieralny B: Systemy CAD w prototypowaniu cyfrowym obiektów technicznych)	3
6	Elective course C: SCADA systems and PLCs in industry (Przedmiot obieralny C: Systemy SCADA i sterowniki PLC w przemyśle)	3
7	Elective course C: Computer methods for the design and control of mechatronic systems (Przedmiot obieralny C: Komputerowe metody projektowania i sterowania systemów mechatronicznych)	7
Semester 7 (winter semester – elective courses)		
1	Elective course D: CAD systems and electromagnetic compatibility (E) (Przedmiot obieralny D: Systemy CAD i kompatybilność elektromagnetyczna)	6
2	Elective course D: PLC logic controllers and PLD programmable systems (E) (Przedmiot obieralny D: Sterowniki logiczne PLC oraz układy programowalne PLD)	6
3	Elective course E: Electromobility and energy storage (Przedmiot obieralny E: Elektromobilność i magazyny energii)	5
4	Elective course E: Electronic circuits in practice	5

	(Przedmiot obieralny E: Układy elektroniczne w praktyce)	
5	Elective course E: Electrical and computer systems of mechatronics (Przedmiot obieralny E: Elektryczne i informatyczne układy mechatroniki)	5
6	Elective subject F: Intelligent building (Przedmiot obieralny F: Budynek inteligentny)	4
7	Elective subject F: Energy conversion systems in renewable energy sources and electric vehicles (Przedmiot obieralny F: Układy przetwarzania energii w systemach OZE i pojazdach elektrycznych)	4

Electrical Engineering, 2nd degree studies – MSc

Descriptions of modules (ECTS cards) available at:

<https://www.put.poznan.pl/karty-ects/20222023/elektrotechnika/stacjonarne/studia-drugiego-stopnia>

No.	Name of Module	ECTS
Semester 1 (summer semester)		
1	Selected issues of electrical engineering (E) (Wybrane zagadnienia elektrotechniki)	4
2	Electromechanical propulsion systems (Elektromechaniczne systemy napędowe)	3
3	Electronics and power electronics (E) (Elektronika i energoelektronika)	4
4	Object-oriented programming in electrical engineering (Programowanie obiektowe w elektrotechnice)	2
Semester 2 (winter semester)		
1	Selected issues of electrical engineering (E) (Wybrane zagadnienia elektrotechniki)	4
2	Numerical methods in techniques (Metody numeryczne w technice)	2
3	Microprocessor technology (Technika mikroprocesorowa)	2
4	Electromagnetic compatibility (Kompatybilność elektromagnetyczna)	2
5	Selected issues of signal processing (Wybrane zagadn. przetwarzania sygnałów)	2
6	Electromechanical propulsion systems (E) (Elektromechaniczne systemy napędowe)	2
Semester 3 (summer semester)		
1	Application of microcontrollers and PLC controls in measurements (Wykorzystanie mikrokontrolerów oraz sterowników PLC w pomiarach)	6
2	Computer aided design (Komputeryzacja projektowania)	1
3	Computer graphics (Grafika komputerowa)	2
4	Computer methods in electrodynamics (Metody komputerowe w elektrodynamice)	3
5	Control of power electronic systems (E) (Sterowanie układów energoelektronicznych)	5
6	Design and simulation of electronic systems (Projektowanie i symulacja układów elektronicznych)	3
7	Diploma project (Projekt dyplomowy)	2
8	Dynamic of systems (Dynamika systemów)	1
9	Electrical and electronic systems in industry and vehicles (Układy elektryczne i elektroniczne w przemyśle i pojazdach)	3
10	Electrothermal processes (Procesy elektrocieplne)	3

11	Hybrid vehicles (Pojazdy hybrydowe)	1
12	Intelligent building (E) (Budynek inteligentny)	4
13	Lighting design (Projektowanie oświetlenia)	1
14	Lighting equipment (E) (Sprzęt oświetleniowy)	5
15	New technology in electromechanics (Nowe technologie w elektromechanice)	1
16	Optimisation methods in electromagnetic devices design (E) (Algorytmy optymalizacji w projektowaniu)	4
17	Property security techniques (Techniki zabezpieczenia mienia)	2
18	SCADA systems and PLCs (Systemy SCADA i sterowniki PLC)	3
19	Selected problems with evaluation of power quality (Wybrane problemy oceny jakości energii elektrycznej)	3
20	Signal processors (Procesory sygnałowe)	5
21	Technologies in Internet (Technologie internetowe)	1
22	Testing of electrical drives in mechatronics (Badanie układów napędowych w mechatronice)	3

Field of study: Mathematics in technology

Contact person:

- Alina Gleska - alina.gleska@put.poznan.pl

Institute of Mathematics

Mathematics in technology, 1st degree studies – BSc

Descriptions of modules (ECTS cards) available at:

<https://www.put.poznan.pl/karty-ects/20222023/matematyka-w-technice/stacjonarne/studia-pierwszego-stopnia>

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)	2
5	Programming I	4
Semester 3 (winter semester)		
1	Ordinary differential equations (E)	4
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	Mathematical statistics (E)	5
	Semester 6 (summer semester)	
1	Optimization methods	4
2	Finite difference method (FDM)	4
	Semester 7 (winter semester)	
1	Multidimensional statistical analysis (E)	4