

Microelectronics and Digital Communication

Harmonogram realizacji programu studiów(O – ogółem, W – wykład, C – ćwiczenia, L – laboratorium, P – projekt, ECTS – liczba punktów ECTS, E – egzamin).

Lp.	Nazwa przedmiotu	Liczba godzin					ECTS	E
		O	W	C	L	P		
SEMESTR I								
1	Algorithm and Data Structures	60	30		30		5	1
2	Algebra and Fundamentals of Optimization Methods for ICT	30	15	15			2	
3	Scripting languages	30			30		2	
4	Mathematical Analysis	60	30	30			5	1
5	Introduction to Electronics	54	24		30		3	
6	Physics	35	15		20		2	
7	Introduction to computer networks	30	15		15		2	
8	Physical education (PE)	30		30			0	
9	Occupational Health and Safety Training	4	4				0	
10	Foreign language	45		45			4	
10a	English	0					0	
10b	German	0					0	
11	Probabilistic methods in ICT	60	30	30			5	1
12	Student's rights and duties	2	2				0	
13	Library training	2	2				0	
Razem w semestrze I:		442	167	150	125	0	30	3
SEMESTR II								
1	Information technology	60	30		30		4	1
2	Programming engineering tools	20			20		2	
3	Mathematical analysis tools for ICT	30	15		15		2	
4	Foundations of transmission	75	30	15	30		5	1
5	Fundamentals of electronic circuits	48	24	24			4	
6	Fundamentals of signal processing	54	24		30		4	
7	Introduction to measurements in electronics	39	15		24		3	
8	Physical education (PE)	30		30			0	
9	Computer networks	60	30		30		4	1
10	Foreign language	30		30			2	
10a	English	0						
10b	German	0						
Razem w semestrze II:		446	168	99	179		30	3
SEMESTR III								
1	Quantum technology	58	30	15	15		4	1
2	Introduction to digital design	75	30	15	30		5	1
3	Object-oriented languages	54	24		30		3	
4	Semiconductor Devices	54	24		30		4	1
5	Introduction to Artificial Inteligence	48	24		24		4	1
6	Systems Engineering	34	16		18		2	
7	Digital Signal Processing	27	12		15		2	

8	Electromagnetic Compatibility	30	15		15		2	
9	Foreign language	30		30			2	
9a	English	0						
9b	German	0						
10	Cloud computing	30	15		15		2	
<i>Razem w semestrze III:</i>		442	190	60	192		30	4
SEMESTR IV								
1	Principles of Wireless Communications	60	30	15	15		5	1
2	Microprocessors technique	54	24		30		4	
3	Digital logic design	45	15		30		2	
4	Telecommunication Networks	30	15		15		2	
5	Electronic Circuits	54	24		30		3	
6	Elective course 1:	54	24		30		3	
6a	EC 1.1: Measurement data acquisition systems	0						
6b	EC 1.2: Introduction to control and measurement systems	0						
7	Introduction to multimedia	54	24		30		4	1
8	Programmable Digital Circuits	54	24		30		4	1
g	Foreign language	15		15			1	
9a	English	0						
9b	German	0						
10	Elective course 2:	30	15		15		2	
10a	EC 2.1: Navigation and positioning of objects	0						
10b	EC 2.2: Time and frequency in ICT	0						
<i>Razem w semestrze IV:</i>		450	195	30	225		30	3
SEMESTR V								
1	Measurements in Wireless Communications	20			20		2	
2	Hardware applications of microcontrollers and microcomputers	54	24		30		3	
3	Wireless digital transmission	60	30	15	15		3	1
4	Elective course 3:	30	15			15	2	
4a	EC 3.1: Virtualization tools	0						
4b	EC 3.2: Authentication and authorization algorithms in wireless systems	0						
5	Workshop PBL1	45				45	5	
6	Antenna Technology	30	15		15		2	1
7	Optoelectronics	30	15		15		2	1
8	Elective course 4:	30	15		15		2	
8a	EC 4.1: Audio and speech systems	0						
8b	EC 4.2: Image Compression	0						
9	Elective course 5:	45	15		30		3	
9a	EC 5.1: Microwave Technology	0						
9b	EC 5.2: Computer analysis of electronic circuit	0						
9c	EC 5.3: Microwaves in quantum computers	0						
10	Elective course 6:	60	15		30	15	4	
10a	EC 6.1: Programming for mobile devices - Android	0						

10b	EC 6.2: Programming for mobile devices - iOS	0						
11	Signalling and management systems in telecommunications	30	15		15		2	
<i>Razem w semestrze V:</i>		434	159	15	185	75	30	3
SEMESTR VI								
1	Cellular systems	54	30		24		3	1
2	Elective course 7:	30	15			15	2	
2a	EC 7.1: Principles of Radar Systems	0						
2b	EC 7.2: Wireless Programmable Systems	0						
3	Workshop PBL2	45				45	4	
4	Synchronization and control systems	54	24		30		3	1
5	Elective course 8:	45	15		15	15	3	
5a	EC 8.1: Wireless Local Area Networks	0						
5b	EC 8.2: Wireless Personal Networks	0						
6	Elective course 9:	54	30		24		3	
6a	EC 9.1: Hardware Security and Next-Generation Cryptography	0						
6b	EC 9.2: Information security in the institution	0						
7	Elective course 10:	45	15		15	15	3	
7a	EC 10.1: Verification of programmable systems	0						
7b	EC 10.2: Embedded Systems	0						
8	Elective course 11:	45	30		15		3	
8a	EC 11.1: Routing protocols	0						
8b	EC 11.2: Network algorithms	0						
9	Internship						6	
<i>Razem w semestrze VI:</i>		372	159	0	123	90	30	2
SEMESTR VII								
1	Elective course 12:	45	30		15		3	1
1a	EC 12.1: Introduction to Satellite Technology	0						
1b	EC 12.2: Satellite communication systems	0						
2	Elective course 13:	45	30		15		3	
2a	EC 13.1: Printed circuit board design	0						
2b	EC 13.2: Sensors and intelligent sensors	0						
3	Elective course 14:	45	15		30		3	
3a	EC 14.1: Optical Signal Processing	0						
3b	EC 14.2: Optical communication	0						
4	Diploma seminar	90				90	12	
5	Elective course 15:	45	15		30		3	1
5a	EC 15.1: Internet of Things	0						
5b	EC 15.2: Communication Technologies in IoT	0						
6	Intellectual property protection	30	15			15	2	
7	Chosen elements of Philosophy, Sociology and Ethics	30	15			15	2	
8	Economics	30	15			15	2	
<i>Razem w semestrze VII:</i>		360	135	0	90	135	30	2
Razem:		2946	1173	354	1119	300	210	20