

(pieczęć wydziału)

COURSE DESCRIPTION

Z1-PU7	WYDANIE N1	Strona 1 z 3
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1. Course title: ARITHMETIC OF DIGITAL SYSTEMS		2. Course code: ADS		
3. Validity of course description: 2018/2019				
4. Level of studies: first degree				
5. Model of studies: stationary				
6. Field of study: INFORMATICS				
7. Profile of studies: general academic				
8. Programme: ALL				
9. Semester: 1				
10. Faculty teaching the course: Faculty of Automatic Control, Electronics and Computer Science, Institute of Informatics				
11. Course instructor: Ph.D. Eng. Urszula Stańczyk				
12. Course classification: general				
13. Course status: obligatory				
14. Language: English				
15. Pre-requisite qualifications: elementary knowledge of mathematics at the high school level				
16. Course objectives: Getting acquainted with the theory and gaining practical skills in the scope of: principles of performing basic arithmetic operations and implementation methods of arithmetic operations in fixed-point and floating-point arithmetic and their selection, evaluation, and application.				
17. Description of learning outcomes:¹				
Nr	Learning outcomes description	Method of assessment	Teaching methods	Reference code
1	Student has knowledge in the field of various number systems and principles of digital arithmetic.	Test	Lecture, classes	K1A_W01
2	Student has ordered, theoretically founded knowledge in the field of methods of performing arithmetic operations	Test	Lecture, classes	K1A_W01
3	Student can convert numbers between various number systems.	Test	Classes	K1A_U11

¹ należy wskazać ok. 5 – 8 efektów kształcenia

4	Student is able to perform, by various methods, basic arithmetic operations on fixed- and floating-point numbers presented in various notations.	Test	Classes	K1A_U12
5	Student can assess the accuracy of the results obtained for conversions and implemented arithmetic operations.	Test	Classes	K1A_U09

18. Teaching modes and hours

Lecture / BA /MA Seminar / Class / Project / Laboratory:

15 / 0 / 0 / 15 / 0 / 0

19 Syllabus description:

Lecture

- Number systems.
- Principles for performing basic arithmetic operations in a numerical system with radix R.
- Conversion between number systems.
- Complements of numbers and their application.
- Numbers with a sign.
- Formats of numerical words in digital systems.
- Fixed-point arithmetic.
- Floating point arithmetic.

Classes

Auditory (table) classes present exercises based on lecture topics.

20. Exam: no

21. Primary sources:

1. Pochopień B.: Arytmetyka komputerowa. Akademicka Oficyna Wydawnicza EXIT, Warszawa 2012.
2. Pochopień B., Stańczyk U., Wróbel E.: Arytmetyka systemów cyfrowych w teorii i praktyce. Wydanie II poprawione i uzupełnione. Wydawnictwo Politechniki Śląskiej, Gliwice 2012.
3. Stańczyk U., Cyran K., Pochopień B.: Theory of Logic Circuits Volume 1 - Fundamental issues. Wydawnictwo Politechniki Śląskiej, Gliwice 2007

22. Secondary sources:

1. Stańczyk U., Cyran K., Pochopień B.: Theory of Logic Circuits Volume 2 - Circuit design and analysis. Wydawnictwo Politechniki Śląskiej, Gliwice 2007
2. Kamionka-Mikuła H., Małyśiak H., Pochopień B.: Teoria układów cyfrowych. Tom I. Układy kombinacyjne. Wydawnictwo Politechniki Śląskiej, Gliwice 2013.
3. Kamionka-Mikuła H., Małyśiak H., Pochopień B.: Teoria układów cyfrowych. Tom II. Układy sekwencyjne. Wydawnictwo Politechniki Śląskiej, Gliwice 2013.
4. Biernat J.: Metody i układy arytmetyki komputerowej. Oficyna Wydawnicza Politechniki Wrocławskiej, Wrocław 2001
5. Pochopień B.: Arytmetyka systemów cyfrowych. Wydawnictwo Politechniki Śląskiej, Gliwice 2002.

23. Total workload required to achieve learning outcomes		
Lp.	Teaching mode	Contact hours / Student workload hours
1	Lecture	15/20
2	Classes	15/20
3	Laboratory	/
4	Project	/
5	Seminar	/
6	Other	10/10
	Total number of hours	40/50
24. Total hours: 90		
25. Numbers of ECTS: 3		
26. Number of ECTS credits allocated for contact hours: 2		
27. Number of ECTS credits allocated for in-practice hours (laboratory classes, projects): 0		
26. Comments:		

Approved:

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 (date, Instructor's signature)

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 (date, the Director of the Faculty Unit signature)