COURSE DESCRIPTION

Course code	full-time studies	
	part-time-studies	
Course name	**Podstawy Programowania 1**	
Course name in English	**Fundamentals of Programming 1**	
Valid from academic year	**2022/23**	

PLACEMENT IN THE TEACHING PROGRAM

Field of study	**Computer Science**
Level of education	**1st degree**
Studies profile	**General**
Form and method of teaching classes	**Full-time and part-time studies**
Specialization	**All specializations / Information systems / Computer graphics / Information and communication technology**
Organizational unit responsible for the course	**Department of Information Systems**
Course coordinator	**Arkadiusz Chrobot, PhD**
Approved by	**Dean of the Faculty of Electrical Engineering, Automatic Control and Computer Science Stanisław Deniziak, KUT prof., DSc, PhD**

GENERAL CHARACTERISTIC OF THE COURSE

Course affiliation	**Introductory Course**	
Course status	**Mandatory**	
Language	**English**	
Semester	full-time studies	**1st semester**
	part-time-studies	**1st semester**
Requirements	**No requirements**	
Exam (YES/NO)	**NO**	
ECTS	**5**	

Course form		lecture	classes	laboratory	project	other
Hours per semester	full-time studies	**30**		**30**		
	part-time-studies	**18**		**18**		

LEARNING RESULTS

Category	Result Symbol	Learning Results	References to the field of study results
Knowledge	W01	The student knows the concepts of imperative programming, procedural programming and algorithm.	INF1_W07
	W02	The student knows the basic elements of a high-level programming language syntax (such as conditional and loop statements).	INF1_W07
	W03	The student knows basic data types, data structures and selected algorithms that use them.	INF1_W07
Skills	U01	The student is able to create basic program using the imperative programming paradigm.	INF1_U07
	U02	The student is able to apply basic elements of high-level programming language syntax in a program.	INF1_U07
	U03	The student is able to apply basic data types and data structures in a program.	INF1_U07
	U04	The student is able to use an Integrated Development Environment, to edit, compile and debug a program.	INF1_U07
Social competence	K01	The student understands the need of constant development of her/his programming skills.	INF1_K1
	K02	The student understands the risks resulting from lack of adequate sills of people who create software individually or in a team.	INF1_K2

COURSE CONTENT

Course Form *	Content
lecture	1. Introduction – concepts of imperative programing, procedural programming, algorithm; examples of algorithms; basic data types; variables and constants. 2. Initialization of variables, operators and expressions, basic input/output. 3. Control statements (conditional statement, switch statement, loops). 4. Functions, local variables, parameters. 5. Enumerations and linear arrays, processing of linear arrays. 6. Strings, processing of strings. 7. Multidimensional arrays, processing of multidimensional arrays. 8. Structures, unions and bit fields. 9. Files, processing of files. 10. Libraries and macros.
laboratory	1. Introduction - the Integrated Development Environment. 2. Basic concepts: variables, constants, data types, basic input/output, operators, expressions. 3. Control statements. 4. Functions. 5. Enumerations and linear arrays. 6. Strings. 7. Multidimensional arrays. 8. Structures and unions. 9. Files. 10. Libraries and macros.

*) zostawić tylko realizowane formy zajęć

LEARNING RESULTS VERIFICATION METHODS

Result Symbol	Learning results verification methods					
	Oral Exam	Written Exam	Midterm	Project	Report	Other
W01			X			X
W02			X			X
W03			X			X
U01			X			X
U02			X			X
U03			X			X
U04			X			X
K01			X			X
K02			X			X

ASSESSMENT FORMS AND CRITERIA

Course Form	Assessment Form	Assessment Criteria
lecture	Passing grade	The student should obtain at least 50% of points at the final test.
laboratory	Passing grade	The student should obtain at least 50% of points from short tests and midterms.

*) zostawić tylko realizowane formy zajęć

STUDENT'S VOLUME OF WORK

		Student Involvement										Unit
No.	Activity Type	full-time studies					part-time-studies					
1.	Participation in classes according to the schedule	Lec	C	Lab	P	S	Lec	C	Lab	P	S	h
		30		30			18		18			
2.	Other (consultations, exams)	2		2			2		2			h
3.	Total with the direct assist of an academic teacher	64					40					h
4.	Number of ECTS, that students obtains with the direct assist of an academic teacher	2,56					1,6					ECTS
5.	Hours of unassisted student work	61					85					h
6.	Number of ECTS that student obtains working unassisted	2,44					3,4					ECTS
7.	Practical classes volume of work	30					18					h
8.	Number of ECTS obtained by student at practical classes	1,25					0,72					ECTS
9.	Total student's volume of work expressed in hours	125					125					h

ECTS Balance

10.	**ECTS**	**5**	ECTS

BIBLIOGRAPHY

1. Brian W. Kernighan, Denis M. Ritchie, "The C Programming Language", Second Edition, Prentice-Hall Inc., Upper Saddle River, 2012
2. Stephen Prata, "C Primer Plus", 6th Edition, Addison-Wesley, Upper Saddle River, 2015
3. Robert Sedgewick, Kevin Wayne, "Algorithms", 4th edition, Addison-Wesley Inc., Reading, Massachusetts, 2011
4. Jon Bentley, "Programming Pearls" Addison-Wesley, Inc., Upper Saddle River, 2000
5. Alfred V. Aho, John E. Hopcroft, Jeffrey D. Ullman, "Data Structures and Algorithms", Addison-Wesley Inc., Upper Saddle River, 1987
6. Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, Clifford Stein, "Introduction to Algorithms", 3rd edition, MIT Press, Cambridge US, 2009
7. Donald E. Knuth, "The Art of Programming", Vol. 1 -3, Addison-Wesley Inc., Reading, Massachusetts, 1998
8. Steven S. Skiena, "The Algorithm Design Manual", Springer-Verlag, Londyn, 2008