RĪGAS TEHNISKĀ UNIVERSITĀTE

RTU Course "Programming Languages"

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General data

Code	DIP208
Course title	Programming Languages
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Marina Uhanova
Academic staff	Natālija Prokofjeva Igors Ščukins Sabina Kataļņikova Jeļena Jevsjukova
Volume of the course: parts and credits points	1 part, 2.0 Credit Points, 3.0 ECTS credits
Language of instruction	LV, EN
Annotation	Programming language concept, standard and versions, alphabet, syntax and semantics. Classifications, characteristics and usage possibilities of programming languages. Technology of program development. Program structure. Example of simple program. Basic objects of programming languages, operators and data, review of control statements. Functions. Objects and storage classes. Pointers, arrays, string processing. Structures. Files. Graphics. Programming language development tendencies.
Goals and objectives of the course in terms of competences and skills	The aim of the course is to present to students different programming languages, concepts of programming language development, as well as to teach them how to develop and to implement software programs in C for different problem solving. Objectives of the course: 1) to consider programming languages of different classes by analyzing their syntax and possibilities of usage; 2) to consider basic elements of programming language C, its syntax and semantics; 3) to teach students to develop programs in C.
Structure and tasks of independent studies	Students should fulfil four laboratory works: 1) programming of branched processes; 2) information processing with functions; 3) structures and string processing; 4) data processing with files.
Recommended literature	1. Scott L.M. Programming Language Pragmatics. 4th Edition. Morgan Kaufmann, 2015. – 992 p. 2. Gregoire Marc. Professional C++. 4th edition. Indiapolis, IN:Wrox (A Willey Brand), 2018. - 1122 p. 3. Stephen Prata. C Primer Plus. 6th Edition. Addison Wesley, 2013. – 1067 p. 4. Stephen Prata. C++ Primer Plus. - Addison Wesley. - 2012. - 1440 p. 5. Sukovskis U. Ievads programmēšanas valodā C. – Rīga: RTU, 1990. – 104 lpp. 6. Ziemelis J. Ievads programmēšanas valodā C. – Rīga: RTU, 1997. – 124 lpp.
Course prerequisites	Algorithms, programming and basics of data structures

Course outline

Theme	Hours
Programming language concept, standard and versions, alphabet, syntax and semantics, classifications.	4
Program structure. Example of simple program. Basic objects of programming languages, operators and data.	6
Control statements. Functions. Objects and storage classes.	6
Pointers, arrays, string processing.	8
Structures and files.	8

Learning outcomes and assessment

Learning outcomes	Assessment methods
Knows basic elements of programming languages, characteristics and usage of different languages, their classifications according to different criteria, and is able to use basic objects of programming language	Positive assessment of final examination.
Is able to develop, run and analyze a program for processing of branched processes.	Independently completed and positively evaluated first laboratory work.
Is able to develop and to run a program for information processing with functions.	Independently completed and positively evaluated second laboratory work.
Is able to develop and to run a program for structures and string processing.	Independently completed and positively evaluated third laboratory work.
Is able to develop and to run a program for information processing with files.	Independently completed and positively evaluated fourth laboratory work.

Study subject structure

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	2.0	1.0	0.0	1.0		*	