

**FACULTY OF ENGINEERING
STUDY COURSE DESCRIPTION**

Course Title:	Computer Architecture				
Course code (LAIS):					
Study programme:	Information technologies				
Level of Study programme:	<input type="checkbox"/>	1st level professional higher education			
	<input checked="" type="checkbox"/>	Professional Bachelor			
	<input type="checkbox"/>	Professional Master			
	<input type="checkbox"/>	Academic Master			
	<input type="checkbox"/>	PhD level			
Type of Study programme:	<input type="checkbox"/>	Compulsory course (Part A)			
	<input type="checkbox"/>	Professional specialization courses (Part B, compulsory)			
	<input type="checkbox"/>	Professional specialization optional courses (Part B, optional)			
	<input type="checkbox"/>	Elective courses (Part C)			
Course Workload:	Credits	ECTS	Academic hours	Contact hours	Independent work hours
Full time	2	3	80	32	48
Course Author/ Tutor:	Toms Amsons			Sarma Cakula	
	Guest lecturer, Mg.sc.comp.			Professor, Dr.paed.	
	toms.amsons@va.lv			sarma.cakula@va.lv	
	Consultation: according to the schedule for each semester				
Study Form:	Full time studies/ Part time studies				
Study year, semester:	1.,2. Semester				
Language:	Latvian/English				
Prerequisites for the Course:	-				
Course Summary:	The aim of the study course is to acquire theoretical and practical knowledge about the personal computer architecture.				
	During the course, students will gain skills to distinguish the basic components of a computer - motherboards, processors, graphics processors, power supplies, RAM, data storage, etc., find component specifications and software, as well as select the appropriate and compatible components according to the customer's wishes.				
	Students will be given practical and theoretical skills in dismantling, assembling and maintaining stationary and portable computers, as well as knowledge of creating a safe work environment.				
Assessment:	Exam				
Requirements for Credits:	Students must submit completed homework, practical work and an exam to pass the course.				
	The course mark consists of three parts: 1. Submission of practical work papers - makes up 30% of the final assessment. 2. Homework evaluation - makes up 30% of the final evaluation. 3. Exam evaluation - makes up 40% of the final evaluation.				
	Submitted works will be evaluated in a 10-point system, taking into account the following criteria: excellent (10) - knowledge, skills and competence exceed the knowledge to be acquired during the course; excellent (9) - knowledge, skills and competence fully correspond to the knowledge to be acquired during the course; very good (8) - the requirements of the task are fully fulfilled, however, in some nuances of its execution there is not a deep enough understanding;				

	<p>good (7) - the requirements of the task are generally met, however, sometimes there is an inability to use the acquired knowledge in accordance with the given task; almost good (6) - the requirements of the task have been fulfilled, however, at the same time insufficiently deep understanding of the task and inability to use the acquired knowledge can be established; average (5) - the requirements of the task have been fulfilled, however, insufficient knowledge of some skills in the performance of the task and inability to use the acquired knowledge have been established; almost mediocre (4) - poorly fulfilled task requirements, however, insufficient understanding of basic concepts is observed, there are significant difficulties in the practical application of the acquired knowledge; weak (3) - knowledge is superficial and incomplete, the student is not able to use it in performing a specific task; very weak (2) - has superficial knowledge only about certain problems, most of the requirements of the task have not been mastered; very, very weak (1) - no understanding of the basic problems of the task, almost no knowledge of the topics covered in the course.</p>																												
<p>Abiding by the Academic Ethics</p>	<p>Students must abide by the academic and research ethics, Vidzeme University of Applied Sciences Ethics Regulations, incl.:</p> <ul style="list-style-type: none"> – study papers must be independently developed; – the study work should reference all statements, ideas and data used that have been authored by someone else; – appropriate data acquisition methods should be used in the acquisition of data, the research ethics must be respected, empirical data must be collected independently and cannot be distorted or falsified; – the examination must be carried out by the student independently, without the use of supporting materials and/or consultations with other students, unless the lecturer states otherwise. <p>In the event of non-compliance with the academic and research ethics, punishment is imposed in accordance with the ViA Ethics Regulations and the study course must be re-taken, unless the punishment is extramarital.</p>																												
<p>Learning Outcomes; the evaluation methods and criteria</p>	<table border="1"> <thead> <tr> <th data-bbox="555 1301 1027 1335">Learning Outcomes</th> <th data-bbox="1027 1301 1442 1335">The evaluation methods and criteria</th> </tr> </thead> <tbody> <tr> <td colspan="2" data-bbox="555 1335 1442 1361">Knowledge</td> </tr> <tr> <td data-bbox="555 1361 1027 1462">The knowledge required to perform the basic tasks of professional activity at the level of representation</td> <td data-bbox="1027 1361 1442 1462">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1462 1027 1525">Labour protection and ergonomics</td> <td data-bbox="1027 1462 1442 1525">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1525 1027 1588">Structure and functioning of computer systems</td> <td data-bbox="1027 1525 1442 1588">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1588 1027 1650">Basic knowledge of computer components operation and compatibility</td> <td data-bbox="1027 1588 1442 1650">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1650 1027 1713">Understanding of the theoretical foundations of programming</td> <td data-bbox="1027 1650 1442 1713">Works submitted by practical classes and homework.</td> </tr> <tr> <td colspan="2" data-bbox="555 1713 1442 1740">Skills</td> </tr> <tr> <td data-bbox="555 1740 1027 1803">Choose adequate tools to solve tasks.</td> <td data-bbox="1027 1740 1442 1803">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1803 1027 1865">Configure workspace and tools</td> <td data-bbox="1027 1803 1442 1865">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1865 1027 1928">Do the work independently.</td> <td data-bbox="1027 1865 1442 1928">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1928 1027 1991">Use information search and selection tools</td> <td data-bbox="1027 1928 1442 1991">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 1991 1027 2054">Follow labour protection requirements</td> <td data-bbox="1027 1991 1442 2054">Works submitted by practical classes and homework.</td> </tr> <tr> <td data-bbox="555 2054 1027 2096">Develop simple algorithms using a Turing</td> <td data-bbox="1027 2054 1442 2096">Works submitted by practical classes</td> </tr> </tbody> </table>	Learning Outcomes	The evaluation methods and criteria	Knowledge		The knowledge required to perform the basic tasks of professional activity at the level of representation	Works submitted by practical classes and homework.	Labour protection and ergonomics	Works submitted by practical classes and homework.	Structure and functioning of computer systems	Works submitted by practical classes and homework.	Basic knowledge of computer components operation and compatibility	Works submitted by practical classes and homework.	Understanding of the theoretical foundations of programming	Works submitted by practical classes and homework.	Skills		Choose adequate tools to solve tasks.	Works submitted by practical classes and homework.	Configure workspace and tools	Works submitted by practical classes and homework.	Do the work independently.	Works submitted by practical classes and homework.	Use information search and selection tools	Works submitted by practical classes and homework.	Follow labour protection requirements	Works submitted by practical classes and homework.	Develop simple algorithms using a Turing	Works submitted by practical classes
Learning Outcomes	The evaluation methods and criteria																												
Knowledge																													
The knowledge required to perform the basic tasks of professional activity at the level of representation	Works submitted by practical classes and homework.																												
Labour protection and ergonomics	Works submitted by practical classes and homework.																												
Structure and functioning of computer systems	Works submitted by practical classes and homework.																												
Basic knowledge of computer components operation and compatibility	Works submitted by practical classes and homework.																												
Understanding of the theoretical foundations of programming	Works submitted by practical classes and homework.																												
Skills																													
Choose adequate tools to solve tasks.	Works submitted by practical classes and homework.																												
Configure workspace and tools	Works submitted by practical classes and homework.																												
Do the work independently.	Works submitted by practical classes and homework.																												
Use information search and selection tools	Works submitted by practical classes and homework.																												
Follow labour protection requirements	Works submitted by practical classes and homework.																												
Develop simple algorithms using a Turing	Works submitted by practical classes																												

	machine	and homework.
	Competency	
	Ability to design by analysing various technical solutions and choosing the most suitable one	Works submitted by practical classes and homework.
	Ability to specify requirements by analysing the possibilities of requirements implementation	Works submitted by practical classes and homework.
	Ability to understand and apply basic algorithms	Works submitted by practical classes and homework.
Course Compulsory literature:	<ol style="list-style-type: none"> 1. Aldis Baums. Datoru arhitektūra un organizācija, 2010, 236 p. 2. Scott Mueller. Upgrading and Repairing PCs 22nd Edition. Que corp., Indianapolis, USA, 2015, 1161 p. 	
Course additional literature:	-	
Course confirmation date:		
Date of course description update:		

Study Course Plan for Full Time Students:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
<i>The date is specified before the implementation of the course</i>	Introductory Lecture	2	2	
	Turing machines	4	6	
	Motherboards	2	3	
	Logical processors	2	3	
	Random access memory and storage devices	2	3	
	Graphical processors	2	3	
	Power supplies, Cases, system cooling	2	3	
	Test	2	3	
	Bios, drivers, firmware	2	3	
	Displays	2	3	
	Choosing computer parts (theory)	2	3	
	Computer assembly and disassembly (theory)	2	3	
	Desktop computer assembly and disassembly (practical work)	2	3	
	Laptop computer assembly and disassembly (practical work)	2	3	
	Exam	2	3	
	Hours total:	32	48	