VIDZEMES AUGSTSKOLA

FACULTY OF ENGINEERING
STUDY COURSE DESCRIPTION

Course Title:	**Computer Architecture**			
Course code (LAIS):	*DatZB024*			
Study programme:	**Information technology (IT)** **Mechatronics (MT)**			
Level of Study programme:	☐ 1st level professional higher education ☒ Professional Bachelor ☐ Professional Master ☐ Academic Master ☐ PhD level			
Type of Study programme:	☒ Compulsory course (Part A) ☐ Professional specialization courses (Part B, compulsory) ☐ Professional specialization optional courses (Part B, optional) ☐ Elective courses (Part C)			
Course Workload:	**Credits[1]**	**Academic hours**	**Contact hours**	**Independent work hours**
Full time:	3	75	30	45
Part time:	3	75	10	65
Course Author/ Tutor:	**Toms Amsons** Guest lecturer, Mg.sc.comp. toms.amsons@va.lv Consultation: according to the schedule for each semester			
Study Form:	Full time studies/ Part time studies			
Study year, semester:	1st year 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 20% of the final assessment. 2. Test – makes up 20% of the final assessment. 3. Homework evaluation - makes up 20% of the final evaluation. 4. Exam evaluation - makes up 40% of the final evaluation. Students have no restrictions on the use of artificial intelligence tools, in accordance with the requirements of the Vidzeme University of Applied Sciences' ethics regu 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			

[1] *Eiropas kredītpunktu pārneses un uzkrāšanas sistēmas studiju uzskaites vienība*

	excellent (9) - knowledge, skills and competence fully correspond to the knowledge to be acquir course; very good (8) - the requirements of the task are fully fulfilled, however, in some nuances of its e not a deep enough understanding; good (7) - the requirements of the task are generally met, however, sometimes there is an inabi acquired knowledge in accordance with the given task; almost good (6) - the requirements of the task have been fulfilled, however, at the same time ins 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 o 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 b 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 performin very weak (2) - has superficial knowledge only about certain problems, most of the requirement have not been mastered; very, very weak (1) - no understanding of the basic problems of the task, almost no knowledge covered in the course.
Abiding by the Academic Ethics	Students must abide by the academic and research ethics, Vidzeme University of Applied Sciences Ethics Regulations, incl.: - 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. 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 exmatriculation.
Learning Outcomes; the evaluation methods and criteria	

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 machine	Works submitted by practical classes 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:	1. Aldis Baums. Datoru arhitektūra un organizācija, 2010, 236 p. Scott Mueller. Upgrading and Repairing PCs 22nd Edition. Que corp., Indianapolis, USA, 2015, 1161 p.	
Course additional literature:	-	
Course confirmation date:	08.12.2022	
Date of course description update:	28.02.2025	

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	
The date is specified before the implementation of the course	Introductory Lecture	2	2	Lecture
	Turing machines	2	3	Lecture, practical work
	Motherboards	2	3	Lecture
	Logical processors	2	3	Lecture
	Random access memory and storage devices	2	3	Lecture
	Graphical processors	2	3	Lecture
	Power supplies, Cases, system cooling	2	3	Lecture
	Bios, drivers, firmware	2	3	Lecture and test
	Displays	2	3	Lecture
	Peripherals	2	3	Lecture and 1 homework
	Computer assembly and disassembly (theory)	2	3	Lecture
	Laptop assembly and disassembly (theory)	2	3	Lecture
	Laptop computer assembly and disassembly (practical work)	4	6	1. practical work
	Exam	2	4	Exam
	Hours total:	***30***	***45***	

Study Course Plan for Part Time Students:

Date	Theme	Academic hours		Study Form/ Organization of independent work of students and task description
		Contact hours	Independent work hours	
The date is specified before the implementation of the course	Introduction course, Motherboards, processors, ram.	**2**	**15**	Lecture
	Turing machines	**2**	**15**	Lecture
	Graphical processors, storage, power supplies, cases, cooling systems, bios, drivers, Displays,	2	15	Lecture
	Desktop and laptop computer assembly, disassembly. Choosing parts for a desktop.	2	15	Lecture
	Exam	2	5	Exam
	Hours total:	***10***	***65***	