Module Description

Module name	Computer Architecture
Module level, if applicable	Bachelor of Informatics
Code, if applicable	21D12120303
Subtitle, if applicable	-
Course, if applicable	**-**
Semester(s) in which the module is taught	3rd
Person responsible for the module	**Adnan., ST., MT., PhD**
Lecturer	Adnan., ST., MT., PhD
Language	Indonesian Language [Bahasa Indonesia]
Relation to Curriculum	This course is a compulsory course and offered in the 3rd semester.
Type of teaching, contact hours	Teaching methods: [group discussion], [simulation], [case study], [collaborative learning], [project-based learning], [problem-based learning]. Teaching forms: [lecture], [tutorial] CH : 08.00 - 16.00
Workload	For this course, students are required to meet a minimum of 136.00 hours in one semester, which consist of: - 40.00 hours for lecture, - 48.00 hours for structured assignments, - 48.00 hours for private study
Credit points	3 credit points (equivalent with 5.1 ECTS)
Requirements according to the	Students have participated in at least 80% of the learning activities (Academic Regulations, Chapter VII).

examination regulations	
Recommended prerequisites	Digital System
Module objectives/intended learning outcomes	After completing the course, Students are able: **Intended Learning Outcomes (ILO):** **ILO 1 :** Have the knowledge of fundamental in Computing Science that includes basic theory and concepts of computer science, Mathematics and Statistics, Programming Algorithm, Software Engineering, Information Management and Digital Resilience, also the advance topics of either Artificial Intelligence, Data Science, Computer Network, Cloud Computing or Internet of Things. **ILO 4 :** Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements by applying computer science theory and software development fundamentals. **ILO 5** : Accomplish the tasks within their professional responsibilities based on legal and ethical principles. **Course Learning Objective (CLO):** After attending this course, students are expected to master theoretical concepts and having adequate knowledge related to the workings of the SAP-1 computer system, and being able to analyze program construction in high language into low-level language and machine language using ISA MIPS. **Sub CLO :** ILO 1 => CLO 1 : Able to understand simple computers architecture concepts such as SAP-1 (needs details), SAP-1 instructions, SAP-1 micro-instructions, SAP-1 microprogramming, MIPS architecture registers and their functions, MIPS architecture instruction format, MIPS assembly language instruction, the concept of various addressing mode and their use in a computer program, and the memory layout for MIPS program. ILO 4 => CLO 2 : Able to create SAP-1 programs and master modern architectural concepts such as MIPS. ILO 5 => CLO 3 : Able to analyze the workings of the SAP-1 computer system using a schematic diagram and simple program translation in HLL to LLL - Branching

	- Loop - Function call
Content	Students will learn about : 1. SAP-1 Simple Computer Organization, register, and bus, ALU 2. SAP-1 instruction set 3. SAP-1 computer instruction cycles 4. SAP-1 Programming 5. SAP-1 microprogramming 6. Modern processor architecture (MIPS) 7. Modern processor registers 8. Modern processor instruction format (MIPS) 9. Instruction set architecture MIPS 10. MIPS architecture programming (HLL to LLL) 11. Memory Addressing Mode on MIPS architecture 12. MIPS program memory layout
Forms of Assessment	Assessment techniques: [observation], [participation], [performance], [written test], [oral test] Assessment forms: [quiz], [midterm exam], [final term exam], [assignment] CLO 1 : 5% quiz, 10% midterm exam, 10% final term exam, 5% assignment CLO 2 : 10% midterm exam, 15% final term exam, 5% assignment CLO 3 : 15% midterm exam, 15% final term exam, 10% assignment
Study and examination requirements and forms of examination	**Study and examination requirements:** - Students must attend 15 minutes before the class starts. - Students must switch off all electronic devices. - Students must inform the lecturer if they will not attend the class due to sickness, etc. - Students must submit all class assignments before the deadline. **Form of examination:** Written Test
Media employed	Video conference, Slide presentation, Learning Management System (LMS).
Reading list	**Main :** Digital Design and Computer Architecture