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| **Institute of Cyberphysical Systems** | | | | | | 2024/25 academic year  I. semester | | | |
| Name of the subject: | | | | Code of the subject: | Credits: | Weekly hours: | | | |
|  | lec | sem | lab |
| Modern computer architectures | | | | NIXKA2HBNE | 2 | full-time | 2 | 0 | 0 |
| Responsible person for the subject: Prof. Dr. Dezső SIMA | | | | | | Classification: professor emeritus | | | |
| Subject lecturer(s):  Prof. Dr. Dezső SIMA | | | | | | | | | |
| Prerequisites: | | | | NBXSS1EBNF | Introduction to Computer Architectures | | | | |
| Way of the assessment: | | | | exam |  |  | | | |
| **Course description** | | | | | | | | | |
| Goal: | | The lecture aims at the familiarization of students with key notions, main relationships and unfolding trends concerning processors. Case examples help to understand the curriculum. | | | | | | | |
| Course description: | | An overview of the evolution of the Intel Core family in client, HEDT, server and mobile processors. The emergence and evolution of AMD's Zen-based architectures. The emerging competition between Intel and AMD in the field of processors. Evolution of the ARM ISA and ARM Cortex processor families. The emergence and development of ARM-based Windows devices. | | | | | | | |
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| **Lecture schedule** | | | | | | | | | |
| Education week | | Topic | | | | | | | |
| 1. | | Overview of Intel’s Core family | | | | | | | |
| 2. | | Overview of Intel’s Core family | | | | | | | |
| 3. | | Overview of Intel’s Core family | | | | | | | |
| 4. | | Overview of Intel’s Core family | | | | | | | |
| 5. | | Overview of AMD’s Zen family | | | | | | | |
| 6. | | Overview of AMD’s Zen family | | | | | | | |
| 7. | | Overview of AMD’s Zen family + Mid-term test | | | | | | | |
| 8. | | Evolution of the ARM ISA and ARM Cortex processor families | | | | | | | |
| 9. | | Evolution of the ARM ISA and ARM Cortex processor families | | | | | | | |
| 10. | | Evolution of the ARM ISA and ARM Cortex processor families | | | | | | | |
| 11. | | The emergence and development of ARM-based Windows devices | | | | | | | |
| 12. | | The emergence and development of ARM-based Windows devices | | | | | | | |
| **Mid-term requirements** | | | | | | | | | |
| Conditions for obtaining a mid-term grade/signature | | | Mid-term test, exam. | | | | | | |
| **Assessment schedule** | | | | | | | | | |
| **Education week** | | Topic | | | | | | | |
| 7. | | Overview of Intel’s Core family | | | | | | | |
| 7. | | Overview of AMD’s Zen family | | | | | | | |
| **Method used to calculate the *mid-term grade*** (to be filled out only for subjects with mid-term grades) | | | | | | | | | |
|  | | | | | | | | | |
| **Type of the replacement** | | | | | | | | | |
| Type of the replacement of written test/mid-term grade/signature | | |  | | | | | | |
| **Type of the exam** (to be filled out only for subjects with exams) | | | | | | | | | |
| Multiple-choice or explanatory written exam | | | | | | | | | |
| **Calculation of the exam mark** (to be filled only for subjects with exams) | | | | | | | | | |
| 25% of the test result and 75% of the exam result are taking into account for the end-of-semester grade. At the end of the lectures, the acquired knowledge of the students will be answered through answering the questions. By achieving good average results during the semester (≥ 75%), students can earn bonus points (about 10% of the max. exam points) for their exams. | | | | | | | | | |
| **​​Final grade calculation methods:​** | | | | | | | | | |
| 0%-49% 1 (failed)  50%-62% 2 (satisfactory)  63%-74% 3 (average)  75%-84% 4 (good)  85%-100% 5 (excellent) | | | | | | | | | |
| **References** | | | | | | | | | |
| Obligatory: | Electronic textbook available in the Moodle. | | | | | | | | |
| Recommended: |  | | | | | | | | |
| Other references: |  | | | | | | | | |