| Óbuda University<br>John von Neumann Faculty of Informatics | Institute for Cyber-Physical Systems | |
|---|---|---|
| **Name and code:** Virtualised storage systems (NIXVT1CBNE) | | **Credits:** *4* |
| *Computer Science and Engineering BSc* | | *2022/23 year II. semester* |
| | | |
| **Subject lecturers:** Attila Farkas | | |

| **Prerequisites (with code):** | - | | | |
|---|---|---|---|---|
| **Weekly hours:** | Lecture: 1 | Seminar.: 0 | Lab. hours: 1 | Consultation: 0 |
| **Way of assessment:** | mid-term mark | | | |

<table>
<tr><td colspan="5" align="center"><b>Course description:</b></td></tr>
<tr><td colspan="5"><i>Goal</i><b>:</b> The main purpose of the course is to show the main features of data storage systems, by introducing data storage building blocks, and structures built upon them. By the end of the course students are expected to know the major data storage physical devices (disks, tapes, SSDs, etc.), data storage networks (SAN, NAS, FC, etc.), and generic storage solutions needed to use virtual facilities (like volumes, redundancy structures, multipathing) based on the physical devices.</td></tr>
<tr><td colspan="5"><i>Course description:</i> We start with introducing the fundamental terms of storage infrastructures, then introducing the physical data storage devices, followed by the widely used data storage networks. We follow the logical layered model of data storage architectures, at each layer showing the most frequently used virtualization solutions as well as parameters. The lab practices will correspond to the theoretical overview, where students are allowed to try out in practice what they learn in theory.</td></tr>
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| Lecture schedule | |
|---|---|
| *Education week* | *Topic* |
| 1. | Storage fundamentals |
| 2. | Physical data storage devices |
| 3. | **Holiday** |
| 4. | Data storage structures: JBOD, partitions, RAID |
| 5. | Data storage architectures 1, DAS, NAS |
| 6. | Data storage architectures 2, SAN |
| 7. | **Holiday** |
| 8. | Data storage protocols 1, FC, AoE, FCoE |
| 9. | Data storage protocols 2, FC, SCSI, iSCSI |
| 10. | **Holiday** |
| 11. | Midterm test |
| 12. | Midterm presentation |
| 13. | Replacement of midterm test or the presentation |
| 14. | **Holiday** |

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| **Midterm requirements** | |
|---|---|
| The midterm test must be passed, and the midterm presentation must be documented and presented. | |
| **Midterm tests** | |
| Education week | Topic |
| 11 | Midterm test |
| 12 | Midterm presentation |
| 13 | Replacement of midterm test or presentation |

| **Final grade calculation methods** |
|---|
| Theoretical Moodle test and practical midterm test.<br><br>The completed midterm presentation will modify the final result with -1/0/+1 grade. |

| **Achieved result** | **Grade** |
|---|---|
| 89%-100% | excellent (5) |
| 76%-88<% | good (4) |
| 63%-75<% | average (3) |
| 51%-62<% | satisfactory (2) |
| 0%-50<% | failed (1) |

| **Type of replacement** |
|---|
| In the 13th week for the written midterm test / presentation. |

| **Type of exam** |
|---|
| - |

| **Exam grade calculation method** |
|---|
| - |

| **References** |
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| Mandatory: |
| https://prezi.com/6mntpvs8oqts/ |
| Recommended: |
| Built into the mandatory one |

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