

Special Topics on Non-Volatile Memory Technologies

Course Description: This course studies various non-volatile memory technologies.

- DRAMs
- STT-RAMs
- Phase Change Memory
- Flash memory
- Non-volatile memory-based caches
- Non-volatile memory-based main memory systems
- Non-volatile memory-based on-chip memory structures
- Non-volatile memory-based storage systems

You have to choose a topic listed above for your project and perform quality research to produce conference-quality research paper.

Prerequisites: operating systems, computer architecture

Textbook:

1. **Nonvolatile memory design, Hai Li and Yiran Chen, CRC press**
2. **Inside NAND flash memories, Rino Micheloni et al, Springer**
3. **Inside solid state drivers (SSDs), Rino Micheloni et al, Springer**
4. **Published papers**

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Grading Policy: Final grade will consist of the followings:

Two student presentations: each 15%

Proposal, Progress, and Final presentations: each 10%

Final report: 40%

Course Schedule (subject to change)

| Week | Date | Topic | talk | Assignments |
|------|------|----------------|------------------|-------------|
| 1 | 3/3 | Introduction | professor | |
| | 3/5 | Overview | professor | |
| 2 | 3/10 | | Student#1 | |
| | 3/12 | | Student#2 | |
| 3 | 3/17 | | Student#3 | |
| | 3/19 | | Student#4 | |
| 4 | 3/24 | | Student#5 | |
| | 3/26 | | Student#6 | |
| 5 | 3/31 | | Student#7 | |
| | 4/2 | | Student#8 | |
| 6 | 4/7 | | Student#9 | |
| | 4/9 | | Student#10 | |
| 7 | 4/14 | | Proposal#1 | |
| | 4/16 | | Proposal#2 | |
| 8 | 4/21 | | Student#1 | |
| | 4/23 | | Student#2 | |
| 9 | 4/28 | | Student#3 | |
| | 4/30 | | Student#4 | |
| 10 | 5/5 | Children's day | | |
| | 5/7 | | Student#5 | |
| 11 | 5/12 | | Progress#1 | |
| | 5/14 | | Progress#2 | |
| 12 | 5/19 | | Student#6 | |
| | 5/21 | | Student#7 | |
| 13 | 5/26 | | Student#8 | |
| | 5/28 | | Student#9 | |
| 14 | 6/2 | | Student#10 | |
| | 6/4 | | Reserved | |
| 15 | 6/9 | | Final #1 | |
| | 6/11 | | Final #2 | |
| 16 | 6/16 | No class | | |
| | 6/18 | No class | Final report due | |